AETIOPATHOLOGICAL EVALUATION OF EPISTAXIS AND MANAGEMENT

DISSERTATION SUBMITTED FOR

MASTER OF SURGERY - BRANCH – IV

(OTO-RHINO-LARYNGOLOGY)

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BONAFIDE CERTIFICATE

This is to certify that the dissertation entitled "**AETIOPATHOLOGICAL EVALUATION OF EPISTAXIS AND MANAGEMENT"** submitted by **Dr. K.R. RADHAKRISHNAN** under my supervision and guidance in partial fulfillment for the award degree of Master of Surgery in Otorhinolaryngology by the Tamil Nadu Dr. M.G.R. Medical University, Chennai is a bonafide record of the work done by him during the academic period 2007 – 2009.

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DECLARATION

I **Dr. K.R. RADHA KRISHNAN s**olemnly declare that the dissertation titled **"AETIOPATHOLOGICAL EVALUATION OF EPISTAXIS AND MANAGEMENT"** has been prepared by me. I also declare that this bonafide work or a part of this work was not submitted by me or any other for any award, degree, diploma to any other University board either in India or abroad.

This is submitted to The Tamilnadu Dr. M. G. R. Medical University, Chennai in partial fulfillment of the rules and regulations for the award of Master of Surgery degree Branch–IV (Oto rhino laryngology) to be held in March 2009.

Place : Madurai **Dr. K.R. RADHA KRISHNAN**

Date :

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CONTENTS

INTRODUCTION

Epistaxis is defined as bleeding from the nose and it is only a symptom of various diseases. This prosaic definition belies the difficulties associated with one of otolaryngology's most common and most difficult to treat emergencies.

Fortunately these episodes are usually minor resolve spontaneously and do not require any medical attention. Conversely they may be more severe, ranging from recurrent episode precipitated by minor trauma to major episodes of bleeding that can be life threatening.

Finding the aetiological factor for epistaxis is as important as treating an episode of epistaxis. In this study attempt is made…

i) To evaluate the cause of epistaxis in one hundred cases selected at random, with the help of relevant investigations.

ii) To find out the modality of treatment for the control of epistaxis. This study shows how important is to remove the primary cause in controlling epistaxis.

AIMS OF THE STUDY

1. Evaluation of various aetiopathology of epistaxis in one hundred cases
2. To evaluate the modality of age, sex and site distribution
3. To assess the various modalities of management of epistaxis.

HISTORICAL REVIEW

Epistaxis is mentioned in medical literature taking back to very early times. HIPPOCRATES was the first to appreciate (In 5th century B.C) that pressure on alae nasi was an effective method of controlling epistaxis and he even tried

application of cold fomentation to the shaved head. He was first to describe vicarious menstruation.

ALI IBN RABBIN AL TABIRI (AD 850) worked extensively in "The paradise of wisdom" about epistaxis. He believed "The complaint of epistaxis is due to swelling of a vein and the rupture or perhaps a reduction in force which confines the blood within".

MORGAGNI (1769) recognized "The extremely turgid blood vessels about that part where alae nasi are found with bone, about a finger breadth from the bottom of the nostril", even stopped nasal bleeds by pressing that part with finger. He drew his inspiration from his teacher valsalva and named the Little's area after him. So in Italian cistes it is called as "LOCUS VALSALVAE".

MOHAMMED (1880-81) who pioneered the development of sphygmomanometer stated that "the frequency with which severe epistaxis occurs in old people with high arterial pressure is striking and for them very fortunate for their noses did not bleed their brains would."

In 1879 JAMES LITTLE published his reports in "Hospital Gazette" (Rainey 1952) where he identified the site of bleeding as being at the caudal end of the septum and a year later "KIESSELBACH" made similar observations.

The first attempt at arterial ligation was done in 1868 (BARTLETT AND MCKITTRICK 1917) when pils of Bresslau tied common carotid artery.

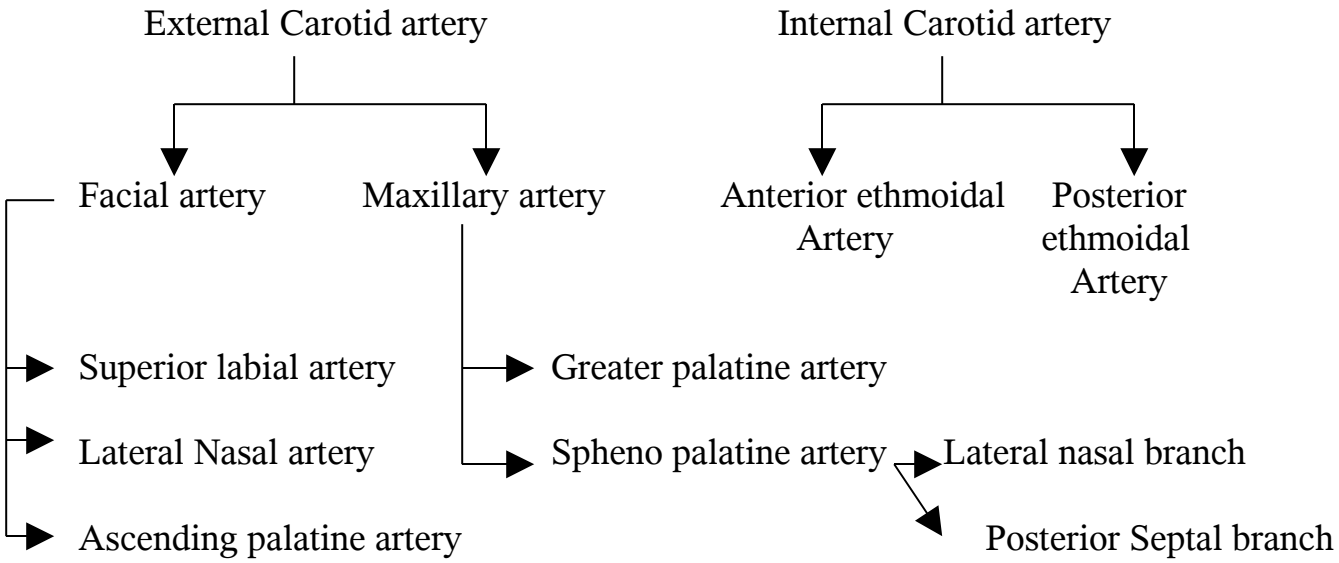
BURNHAM (1935) described how the inferior and middle turbinate arteries branches from posterior lateral division of sphenopalatine artery run in bony tunnels within the turbinates.

Anterior Ethmoidal Artery Ligation was first done in 1937.

In 1949 WOODRUFF described a plexus of prominent blood vessels lying inferior to the posterior end of inferior turbinate a frequently site of adult epistaxis and described 14 cases of bleeding from this area.

External carotid artery ligations were done much later. Ligation of internal maxillary artery by transantral approach was first done by SEIFFERT in 1978.

VASCULAR ANATOMY OF NOSE



There is an extensive network of blood vessels supplying the nasal mucosa.

These vessels are branches of both the external and internal carotid arteries.

Internal Carotid Artery :

This contributes the anterior and posterior ethmoidal branches of ophthalmic artery. ANTERIOR ETHMOIDAL ARTERIES after arising in the orbit runs under the superior oblique muscle to the anterior ethmoidal canal in which it transverse the ethmoid and nasal cavities. It terminates in the region of the ethmoidal fovea as a meningeal branch and a larger branch to the nasal roof olfactory cleft and superior turbinate. Absent in 10% cadaver dissections LANDMARK : The anterior ethmoidal artery foramen was found to lie in the fronto ethmoid sutureline in 68% cases and slightly above in the remainder.

POSTERIOR ETHMOIDAL ARTERY is present in only 80% of individuals. It runs medially passes above the superior oblique muscle to enter the posterior ethmoidal foramen situated 5 mm arterior to the optic canal and 10-15 mm behind the anterior ethmoidal foramen. Within this canal, the posterior ethmoidal artery is accompanied by the sphenoethmoidal nerve and a branch of nasociliary nerve. The vessel also divides into a terminal meningeal branch and a branch to the posterosuperior nasal cavity olfactory sulcus and spheno ethmoidal recess. Absent in 31% cadaver dissections.

LAND MARK : The posterior ethmoidal artery foramen is more consistent with

87% of the arteries located in the fronto ethmoid suture line and the remainder within 2mm above it.

External Carotid Artery :

This supplies via facial and maxillary arteries. THE SPHENOPALATINE ARTERY the most important supply to nasal cavity enters the nasal cavity through spheno palatine foramen and immediately divides into posterior septal and posterior lateral rami. The POSTERIOR LATERAL BRANCH gives inferior and middle turbinate arteries. The POSTERIOR SEPTAL BRANCH passes medially across the face of sphenoid to the posterior part of septum then take an undulating course anteroinferiorly in mucoperichondrium.

The GREATER PALATINE ARTERY descends through the greater palatine canal to emerge on the oral surface of palate. Branches pass through the incisive canal to anastomose with septal branch of sphenopalatine artery. In the greater palatine canal a number of branches perforate the perpendicular plate of palatine bone and anastomose on the lateral wall with lateral nasal branches of sphenopalatine artery.

THE FACIAL ARTERY supplies the most anterior part of the septum (nasal septal rami of SUPERIOR LABIAL ARTERY), the vestibule (LATERAL

NASAL ARTERY) and a small area of nasal cavity (ASCENDING PALATINE ARTERY).

In the posterior nasal cavity vessels are larger than those in littles area and can more easily be traced to the External or internal carotid origin. When the anterior ethmoidal artery is absent the posterior ethmoidal artery will compensate and sometimes it may arise directly from circle of Willis in which case it will be the dominant artery of nose.

KISSELBACH'S plexus is composed of unusually long capillary loops and is situated in LITTLE'S AREA where sphenopalatine, greater palatine, anterior ethmoidal and superior labial anterior anastamose.

WOODRUFF'S PLEXUS

A venous plexus of prominent blood vessels lying just inferior to the posterior end of inferior turbinate a frequent site of adult epistaxis so called POSTERIOR EPISTAXIS.

PREDOMINANT SITE

Numerous studies were conducted by Shaheen. Wurman. El. Simily. Rosnagter Mc Garry. Their findings support that epistaxis is predominantly SEPTAL in origin (70%).

BLOOD SUPPLY OF THE INFERIOR TURBINATE

On reaching the inferior turbinates the artery divides into three parallel

branches which run in bony tunnels in the substance of the turbinate. These tunnels with their periarterial cuff of fibrous tissue and venous elements may prevent the artery constricting following turbinectomy and may predispose to post operative haemorrhage.

THE VEINS follow the arteries within the mucosa. The exception is the periarterial venous cuff surrounding the interosseus portions of the inferior and middle turbinate arteries. The cavernous venous system drains via the sphenopalatine vessels into the pterygoid plexus posteriorly and anteriorly drainage is via superior labial and greater palatine veins to the facial vein and ultimately the external jugular system. Superiorly the ethmoidal veins communicate with the superior ophthalmic system and there may be direct intracranial connections through the foramen caecum into the superior sagittal sinus.

The venous bleeding common in CHILDREN arises from RETROCOLUMELLAR VEIN which lies 2mm behind and parallel to the columella.

ARTERIOARTERIAL ANASTAMOSES :

The anterior and posterior ethmoid arteries join in a series of arcade in the upper one third of nose and branches of sphenopalatine artery anastamose with

those of ethmoidal arteries above the level of middle turbinates.

The view that the middle turbinate marks the watershed between internal and external carotid circulations is erroneous as the arterioarteriolar anastamotic network allows varying directions of flow to occur. Compensating anastamotic flow via the facial arteries is thought to explain rebleeds which may occur following ligation or embolization.

CLASSIFICATION OF EPISTAXIS

I	On Age Distribution	:	Bimodal presentation
			Rare in less than 2 yrs
			More common in 3-8 yrs
			Less common in Early adult life

Peaks in sixth decade

ADULT EPISTAXIS > 16 yrs

CHILDHOOD EPISTAXIS < 16 Yrs

II On Bleeding Site : Anterior Epistaxis :

Bleeding from a source anterior to the plane of pyriform aperture. (Anterior septum rarely from vestibular skin and mucocutaneous junction)

Posterior Epistaxis : Bleeding from a source posterior to the plane of pyriform aperture (Lateral wall and floor of nasal cavity).

III - On Aetiology : Primary Epistaxis :

80% of all epistaxis are idiopathic spontaneous bleeds without any proven causal factor.

Secondary Epistaxis :

A small proportions due to clear and definite cause are grouped as secondary epistaxis.

CHRONOBIOLOGY

The frequency of admission is greatest in the autumn and winter months. This correlates with fluctuations in environmental temperature and humidity. Also a biphasic pattern with peaks in the morning and late evening is observed.

CAUSES OF EPISTAXIS

Local Causes :

TRAUMATIC

Nasal bones fracture with disruption of nasal mucosa

Nasal surgical procedure

Nasal intubation

Digital trauma

Antihistamine and steroid nasal spray

Cocaine, snuff and heroin sniffing

Nasal oxygen in continuous positive airway pressure

Nasal foreign bodies

STRUCTURAL

Nasal structural deformity (Deflections and spur)

Septal perforations

Inflammatory Diseases :

Viral upper respiratory tract infections

Bacterial sinusitis

Allergic Rhinitis

Pyogenic granuloma

Granulomatous diseases (Wegener's granulomatoses tuberculosis,

sarcoidosis, syphilis)

Environmental Irritants(Cigarette smoking, chemicals pollution)

TUMOURS, VASCULAR MALFORMATIONS

Angiofibroma

Aneurysms

Epidermoid carcinoma

Nasal papilloma

Adeno carcinoma

Encephalocele

Esthesio neuroblastoma

Hemangioma

SYSTEMIC CAUSES OF EPISTAXIS

Coagulation Deficits :

Thrombocytopenia

Acquired coagulopathies

Congenital coagulopathies

Vitamin A, C, D, E or K deficiency

Liver disease

Renal failure

Chronic Alcohol abuse

Malnutrition

Polycythemia vera

Multiple myeloma

Anticoagulant drugs (Aspirin, NSAIDS, Heparin, coumarin)

Leukemia

VASCULAR DISEASE

Arteriosclerotic

Collagen abnormalities

Hereditary haemorrhagic telangiectasia

CARDIOVASCULAR CONDITIONS THAT INCREASE VENOUS PRESSURE

Congestive heart failure

Mitral valve stenosis

Hypertension

Unproven relationship

CHILDHOOD EPISTAXIS

Age : Peak prevalence in 3-8 yrs of age

Rare in < 2 yrs of age

Seasonal Prevalence :

In winter months due to greater frequency of upper respiratory tract infections or to the drying effect of inspired air of modern central heating systems.

Susceptibility :

Children are especially susceptible to nosebleeds due to the extensive vascular supply to the nasal mucosa and the frequency with which they develop upper respiratory tract infection.

Site : The anterior part of the nasal septum as this part is thin and is exposed to dry air currents during the respiratory cycle and nose picking.

Source :

A prominent retrocolumellar vein or varix

Aetiology :

Most cases are idiopathic

Others :

Trauma – Repeated nose picking, Surgery, septal perforation

Allergy

Infection, Vestibulitis

Nasal foreign body

Less common causes :

Local :

Deviated nasal septum, tumours, vascular abnormalities

Systemic:

Coagulopathies hereditary haemorrhagic telangiectasia

ADULT PRIMARY EPISTAXIS :

Presents peak in the sixth decade and reveal a slight male predominance.

The incidence of an episode of epistaxis in one's life time has been described as approximately 60% with less than 10% of these requiring medical attention. Males are slightly more affected than females although > 50 yrs, the ratio is 1 : 1 Another trend seen in clinical practice is that children and Adolescents are more often affiliated with minor episodes of anterior nasal bleeding whereas the incidence of severe posterior bleeding is greater in those > 50 yrs old.

Idiopathic epistaxis :

In majority of cases bleeding arises from an artery or a vein without any obvious abnormality to account for it hence the terms 'SPONTANEOUS' or 'IDIOPATHIC' are used to cover this category which is the commonest cause of epistaxis. Certain contributory factors may be implicated in the onset of bleeding such as nose blowing, sneezing, coughing, straining, pregnancy, coryza and sinusitis. All these cause a sudden rise in vascular pressure.

TRAUMA

The causes of nasal trauma are

a) Facial Injuries : this may occur due to personal assault, sports injuries, road traffic, accidents.

Persistent bleeding can occur from the ethmoidal arteries following fronto ethmoidal fracture. The vessels may be lacerated, incompletely divided or even held up by fracture.

Catastrophic bleeding has been reported after head injuries, due to delayed rupture of an internal carotid artery aneurysm.

b) FOREIGN BODIES are another form of trauma that lead to direct laceration of mucosa or secondary infection granulation tissue or bleeding.

c) SURGERY - following inferior turbinectomy

- Damage to anterior ethmoidal artery during FESS
- Damage to the internal carotid artery during posterior ethmoid or sphenoid sinus surgery.

Septal Abnormalities :

Mucosa over the deviated part of the septum is exposed to the drying effects of air currents leading to the formation of crusts which when removed cause bleeding. Bleeding may also occurs from vessels over a septal spur.

Inflammatory disease :

a) Viral URTI : The common cold is probably the common viral infection in man. Children and young adults are particularly susceptible to rhinovirus infections. The predisposing factors are climate environment temperature and humidity. Other causative viruses are corona virus influenza. Para influenza, Adenovirus and respiratory syncytial virus.

b) BACTERIAL : The acute bacterial infections are nearly always caused by aerobic organisms. Pneumococcus, Staphylococcus, Streptococcus or haemophilus influenzae. CHRONIC DIPTHERIC RHINITIS also known as FIBRINOUS RHINITIS is the chronic form of diptheric rhinitis. The fibres of fibrinous membrane extend deeply into the submucosa and this accounts for the bleeding when the membrane is removed.

c) ALLERGIC , VASOMOTOR : Patients who suffer from sinus disease nasal inflammation and allergy are more prone to epistaxis becaue the nasal mucosa is more inflamed, hyperaemic and friable.

d) GRANULOMATOUS DISEASES – Wegener's granulomatosis is a systemic disease of unknown aetiology primarily involves the upper and lower respiratory tracts and the kidneys. Patients often presents with persistent 'cold' complicated by a blood stained nasal discharge.

Tuberculosis of the nose may be nodular or ulcerative affecting the cartilaginous portion of the nasal septum it may be primary but is usually

secondary to tuberculosis of the lungs. Lupus Vulgaris commonly involves the mucocutaneous junction of the nasal septum. Symptoms are nasal discharge and obstruction followed by crusting and epistaxis.

Nasal Syphills :

The endarteritis reduce the lumen of the blood vessels and result in necrosis and ulceration. Primary syphilis presents as a hard painless ulcerated papule with an enlarged non tender node 3-4 weeks after contact, secondary syphilis commonly presents as simple catarrhal rhinitis 6-10 weeks after incubation. Tertiary syphilis – The pathological lesion is the gumma involving the bony portion of the septum commonly.

Leprosy is a chronic granulomatous disease, most commonly first involve the anterior end of the inferior turbinate as an isolated nodule. Perforation of the cartilaginous portion of the nasal septum is followed by perichondritis and periosteitis of the nasal cartilage inferior turbinates and anterior nasal spine which leads to the typical deformity.

Rhinoscleroma is a progressive granulomatous disease commencing in the nose and eventually extending into the nasopharynx and below. Three recognized stages are 1. The Atrophic stage, 2. Granulation or nodular stage 3. Cicatrizing stage.

Rhinosporidiosis is a chronic infection by the fungus Rhinosporidium

seeberi which predominantly affects the mucous membrane of the nose and nasopharynx. The mode of infection is probably by taking bath in infected ponds and lakes or from inhalation of dust from dung of infected horses and cattle. Epistaxis is often the only symptom. The characteristic lesion is a bleeding polyp. The lesions are friable leaf shaped reddish with studded with sporangia showing as white dots.

Atrophic rhinitis (OZAENA) is a chronic nasal disease characterized by progressive atrophy of the mucosa and underlying bone of the turbinates and the presence of a viscid secretion which rapidly dries and forms crusts which emits a foul odour called ozaena. The presenting symptoms are most commonly nasal obstruction and epistaxis.

NEOPLASTIC CAUSES :

Haemangioma : The gross appearance of these tumours is usually an extremely vascular polyp pedunculated and sometimes ulcerated. Commonly found on the anterior part of the septum, where they are called the 'Bleeding polyp of the septum".

Juvenile Angiofibroma :

It is a peculiar benign tumour which occurs in the nasopharynx of young boys who have nose bleeds and nasal obstruction. It originates in posterior nasal cavity near the upper margin of the sphenopalatine foramen.

Malignant tumours :

Both carcinoma and sarcoma can affect the nose. 95% cases belong to carcinoma. SQUAMOUS CELL CARCINOMA is the most common malignant tumours of the nose. Commonly originates from the nasal vestibule, lateral wall of the nose, the turbinates the meatus or the septum. Presents as ulceration or friable granulations.

DRUG INDUCED :

NSAIDS : Via an antiplatelet aggregation effect due altered platelet membrane physiology.

WARFARIN : Bleeding may be due to overdoses or loss of control or even when INR is within the therapeutic zone.

ALCOHOL : The use of alcohol by epistaxis patients is associated with a prolongation of bleeding time despite normal platelet counts of coagulation factor activity.

DISEASES OF DEFECTIVE COAGULATION :

Deficiencies of various coagulating factors either congenital or due to acquired causes may result in epistaxis. The acquired causes may be due to Heparin therapy or Heparinoid states like Leukemia, aplastic anaemia, lymphosarcomas and lymphoma, liver diseases or myelosuppression etc.

BLOOD VESSEL DISORDERS :

Medium and smaller nasal arteries in middle and old age are subjected to a progressive replacement of the muscle tissue in tunica media by collagen. This accounts for the lengthy duration of arterial haemorrhages due to failure of the vessel to contract.

HEREDITARY HAEMORRHAGIC TELANGIECTASIA (RENDU. OSLER WEBER) DISEASE

It is an autosomal dominant disease. The pathology lies in the in the inherited lack of contractile elements in the walls of blood vessels. 97% penetrance at 50 yrs of age. Genetic abnormality is located to chromosome 9q (HHT) and chromosome 12 q (HHTz). The classical features are telangiectasia, AV malformations, aneurysms in skin or mucous membrane of mouth nose and aerodigestive tract. These patients suffer from recurrent epistaxis and gastrointestinal haemorrhage.

HYPERTENSION AND EPISTAXIS

Hypertension per se does not cause epistaxis but patients with higher blood pressure have more severe or persistent bleeding and therefore eligible for hospitalization.

SUPPLIES AND EQUIPMENTS

For the Evaluation and Treatment of Epistaxis the Urgent care setting needs

Personal protective supplies : Mask gown Eye protection

Wall suction and Tubing

Frazier tip suctions, size 10 & 12 gauge

Headlight

Nasal speculum

Bayonet forceps

Cotton or neurosurgical cottonoid sponges

Silver nitrate cautery sticks

Packing materials : Merocel Nasal sponges

Vaseline strip guaze

Gelform

Surgical (oxidized cellulose)

Suction cautery unit

0^{o} and 30^{o} Rigid nasal endoscopes with light source

Optional loupe magnification

Vasoconstriction and Anaesthetics :

4% or 10% cocaine

0.5% - 1% phenylephrine

2% topical lignocaine solution

1% lignocainewith 1 : 100000

(injectable) Adrenaline

Antibiotic ointment (without neomycin)

Tongue blades

2, 10cc syringes with 18 and 20 guage needle.

MANAGEMENT

CHILDHOOD EPISTAXIS :

Simple measures such as pinching the nose and ensuring that the child keeps his / her head forward are usually sufficient. Reassure the child and the parent that the condition is benign. Making the child to situp in the examining chair, or on the parents knee with a good light source a good view of the nasal cavities can be obtained by elevating the tip of the nose before using a nasal speculum or an endoscope. Auriscope with a good sized speculum can also be used. If there are clots, the child can be asked to blow the nose to remove them and in a cooperative child gentle pressure suction can be used. If using an anaesthetic / decongestant agent, it can be applied directly using a cotton wool bud.

Commonly used therapeutic Options :

1. Expectant treatment ie. first the management of acute bleeds as they arise.
2. Use of an oil based antiseptic cream
3. Application of petroleum jelly
4. Nasal cautery using AgNO3
5. Electrocautery to the suspected bleeding point

If these are unsuccessful, anterior nasal pack or balloon tamponade can be tried.

If further bleeding continued, post nasal packing can be done under general anesthesia.

Less common Interventions :

Laser therapy, limited septoplasty, Local application of tranexemic acid gel and fibrin glue, endoscopic treatment of offending vessels by diathermy or ligation and in recalcitran cases embolization.

The most widely used antiseptic cream NASEPTIN a combination of chlorhexidine and Neomycin. As it contains peanut oil, it must not be used in suspected peanut allergy.

TREATMENT OPTIONS IN THE MANAGEMENT OF EPISTAXIS

Medical management

Nasal packing - Traditional anterior packs

Nasal sponges

Gel foam

Traditional posterior pack

Nasal balloon

Cautery

- AgNO3
- Endosopic electrocautery

- Laser cautery

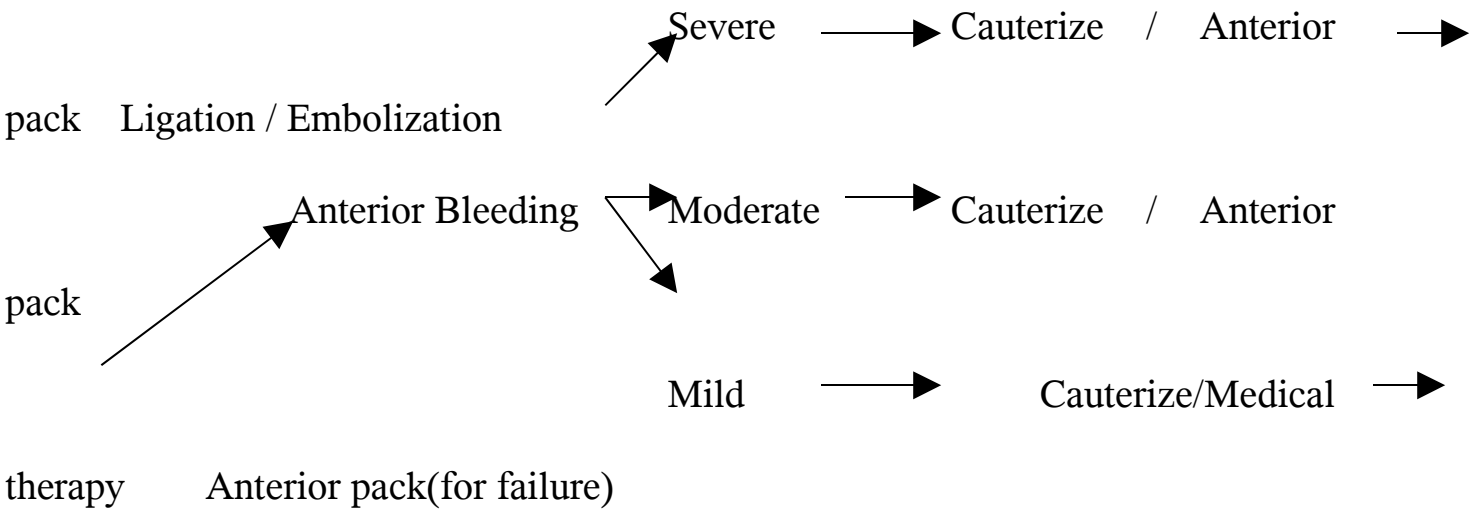
Embolization

Ligation

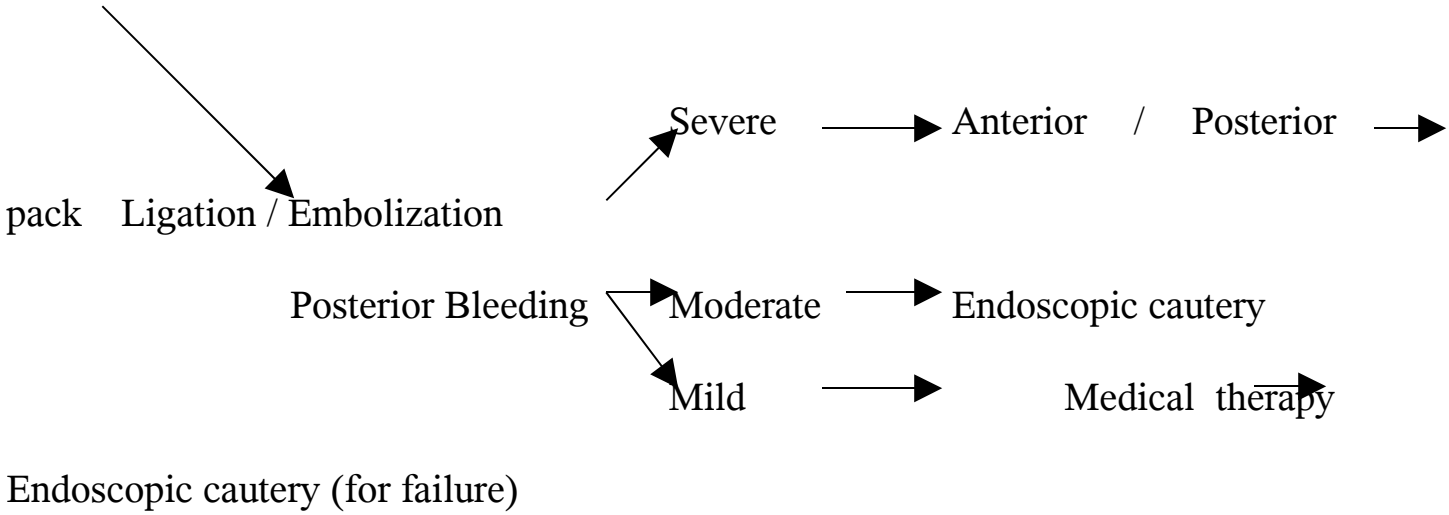
Surgeries - Septoplasty

- Septal dermoplasty

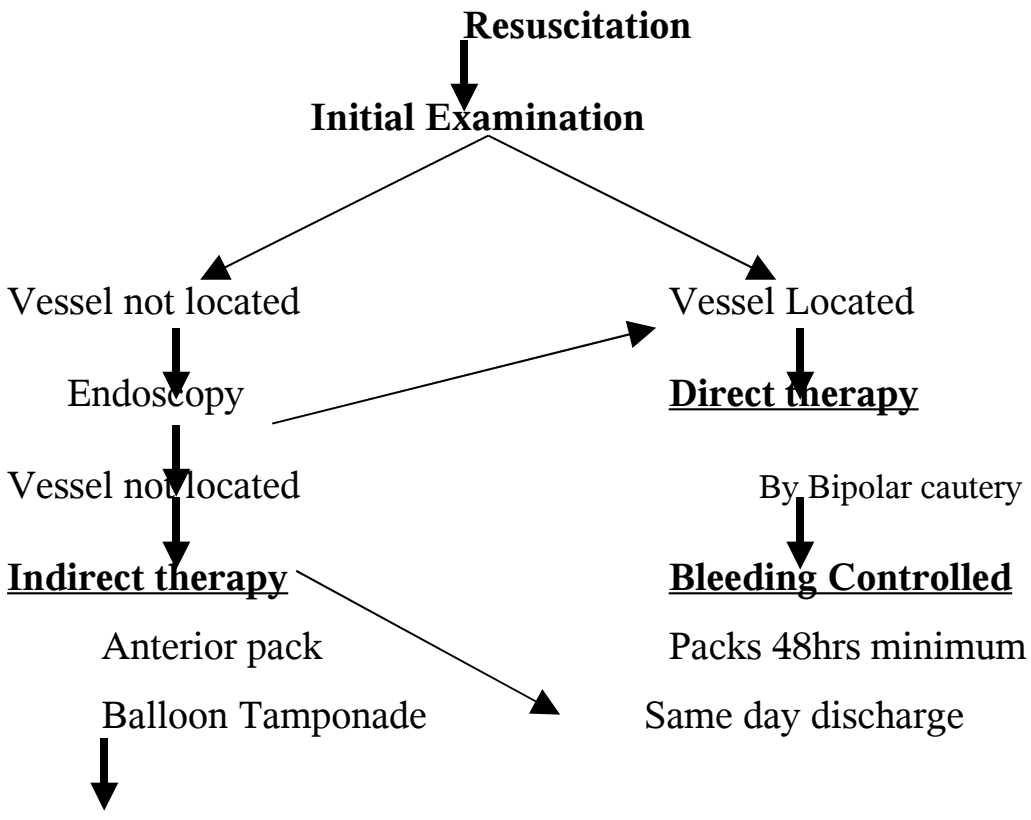
MANAGEMENT PROTOCOL FOR ACUTE EPISTAXIS

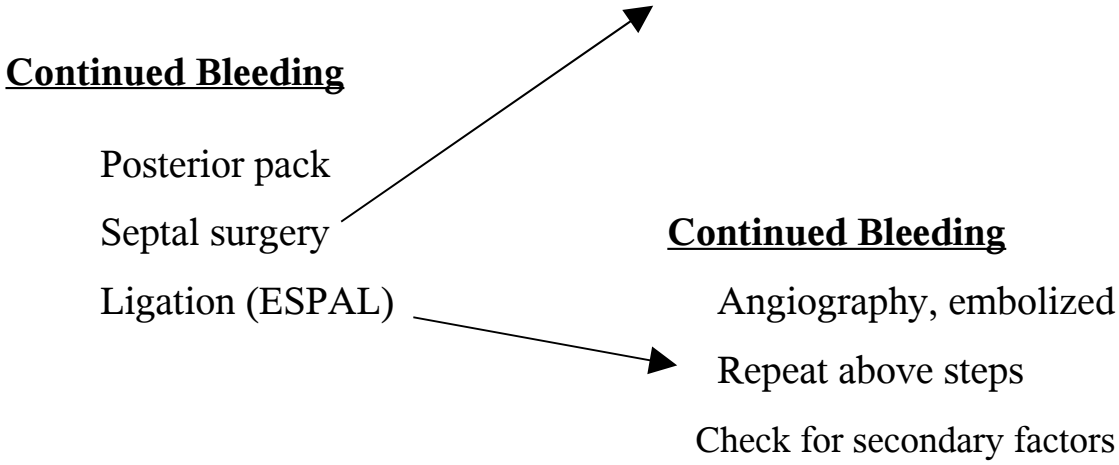


Evacuate Nose
Decongestant
Identify bleeding site



MANAGEMENT STRATEGY FOR CHRONIC OR RECURRENT EPISTAXIS





RESUSCITATION

First aid by pinching the ala nasi HIPPOCRATIC TECHNIQUE compresses the vessels of Little's Area. In TROTTER'S METHOD patient is made to sit learning a little forward to spit any blood and breathe quietly from the mouth. Cold compresses can be applied to the nose to cause reflex vasoconstriction.

Topical Anaesthesia with a combination of 4% TOPICAL LIDOCAINE WITH 1: 100 000 PSEUDOEPHEDRINE can be applied with cotton tipped application or aerosol or custom made cotton pledget.

DIRECT THERAPIES

Direct (Bleeding Point specified therapies are logically, therapeutically superior).

CAUTERY

Once the active bleeding site is identified and anaesthetized SILVER NITRATE is commonly used to cauterize the vessel. It is advisable to cauterize circumferentially around the bleeding site first before applying the cautery to the bleeding area, otherwise the more act of cautery may provoke bleeding. Cauterized areas are noted to have grayish white colouration..

PRINCIPLE :

Injury to nasal mucosa and underlying vasculature results in immediate coagulation and / or blood vessel constriction causing immediate cessation of bleeding. In addition mucosal injury stimulate mucosal bleeding thus reducing the risk of bleeding with further trauma.

Aggressive cautery on both sides of the septum result in septal perforation or exposure of the cartilage.

TRICHLOROACETIC ACID may also be used for cauterization.

ELECTROCAUTERY can be used safely in experienced hands. On failure with silver nitrate, electrocautery may be the only choice.

ANTERIOR EPISTAXIS - 90% of cases are controlled with silver nitrate cautery

POSTERIOR EPISTAXIS – from the lateral wall or floor or septum. The principal focus is septum. Once the bleeding points are identified, they can be

directly controlled with bipolar diathermy, chemical cautery electrocautery or direct pressure from packs.

SURGICAL : 1. Bipolar diathermy to the main branch inferior turbinate artery following INFERIOR TURBINECTOMY. 2. Bipolar diathermy of anterior ethmoidal artery in FESS bleed.

After the cautery the patient is instructed to open the mouth when sneezing and to avoid blowing the nose or picking at the eschar for one week. Hydration maintenance, antiseptic ointment is to be applied to the area until it is healed (1-3 weeks).

Failure to locate the bleeding point is an indication for examination with a rod lens endoscope mainly for posterior epistaxis. Insulated hot wire cautery or modern single fibre bipolar electrodes give 90% success rate.

INDIRECT THERAPIES

Failure to find the bleeding point is an indication for traditionally favoured indirect strategies.

ANTERIOR PACKING

1. When cautery is unable to control epistaxis
2. When the bleeding site cannot be identified placement of anterior nasal pack is required. Most commonly used packs are

1. PETROLEUM JELLY strip guaze coated with an antibiotic ointment
2. BISMUTH – IODOFORM – PARAFFIN PASTE (BIPP) an antiseptic coated guaze. It is placed over the entire length of the nasal cavity. Such a pack can be left in place for 24-72 hrs while the patient takes broad spectrum antibiotics.

The technique for packing is critical. Starting inferiorly along the floor and packing superiorly taking care to push the gauze under the inferior turbinate. Only closed loops of guaze are placed posteriorly to prevent strands of packing from dangling down from the nasopharynx. The pack is kept either in horizontal or vertical layers.

Packing with KALTOSTAT (CALCIUM SODIUM ALGINATE) is useful in young children since it can be inserted without local anaesthesia. Occassionally a dissolvable packing may be used. This is particularly useful in patient with coagulopathy because there is no trauma on removing the nasal pack. OXIDISED CELLULOSE preparations (OXYCEL, SURGICEL) or an absorbable GELATIN SPONGE (GELFOAM) can be used for this purpose.

Modern variations on anterior packing includes Special tampons

(MEROCEL AND KALTOSTAT) and Balloon catheters (BRIGHTON OR EPISTAT)

Over inflated balloons will prolapse anteriorly and posteriorly with the risk of hypoxia and alar necrosis. Complications of packing includes sinusitis, septal perforation, Alar necrosis, Hypoxia and myocardial infarction.

INFLATABLE BALLOON PACKS

Two types of balloon tampons are used.

1. FOLEYS CATHETER
2. CATHETER designed solely for the control of epistaxis

After applying topical anaesthesia, a 12 or 16 no. French gauge FOLEY's CATHETER with a 30 cc balloon is placed along the floor of the nose until the balloon is seen in the nasopharynx. The balloon is then slowly inflated with 15 ml water and the catheter is retracted arteriorly to wedge the balloon snugly into the posterior nasal cavity. The anterior packing is then inserted.

Epistaxis balloon tampons provide a low pressure double balloon system that serves as both an anterior and posterior pack.

MEDICAL THERAPY (ADJUVANT THERAPY)

Avoid nasal trauma

Nasal hydration with saline mist. Nasal gels and ointment

Increasing ambient humidity with a humidifier or vapourizer

ANTI FIBRINOLYTICS :

TRANEXEMIC ACID

EPSILON AMINO CAPRIOIC ACID

At a dose of 1.5 gm TDS

Indication : As an adjuvant therapy in recurrent or refractory cases

Contraindication : Preexisting thromboembolic disease

These drugs do not increase fibrin deposition and so do not increase the risk of thrombosis in normal patients.

HOT WATER IRRIGATION :

Irrigation of the nasal cavity with water at 50^{o} C involve reflex vasodilatation and reduction in nasal lumen dimensions.

SURGICAL MANAGEMENT

DIRECT THERAPY

Endoscopic diathermy of the bleeding point under anaesthesia may control the bleeding if still not controlled.

INDIRECT THERAPIES :

1. Posterior packing

2. Ligation techniques

3. Septal surgery techniques

4. Embolization techniques

POSTERIOR NASAL PACKING

Although the posterior pack may directly tamponades the bleeding point, it may also act as a buttress against which an effective anterior pack can be placed. The classic pack consisting of a guaze tampon placed transorally into the nasopharynx and held in place by silk suture brought out through the nostril. Nasal pack is made from rolled guaze and soaked in antibiotic ointment or solutions.

The pack should be small enough to fit into the choanae, but not displaced into the oropharynx. Can be carried out under LA. But GA is preferable. A small red rubber catheter is passed through each nostril and brought out through the mouth. The silk ties are secured to the end of catheters and are used to retract the pack into the nasopharynx. The third silk tie is left protruding from the mouth and is taped to the cheek and used later for removing the packs. The silk ties are tied over a large guaze or dental roll to prevent columellar necrosis.

The pack is kept for minimum 48 hours. The patient is hospitalized and observed carefully.

COMPLICATIONS :

Pain and hypoxia secondary to soft palate edema. Sinusitis and middle ear

effusions are common. More serious complications include necrosis of the septum and columella. Antibiotics and opiate analgesia are necessary.

ARTERIAL LIGATION

Selective arterial ligation has been proposed as an alternate more effective technique to control intractable epistaxis. Ligation should be performed as close as possible to the likely bleeding point.

ESPAL (ENDONASAL LIGATION OF SPHENOPALATINE ARTERY)

The sphenopalatine foramen which is a U shaped notch in the vertical portion of the palatine bone transmits the sphenopalatine artery, vein and the nasal palatine nerve. A small bony projection lies anterior to the foramen in 96% cases called the "CRISTA ETHMOIDALIS" and is the landmark for surgical localization of the foramen for ligating the artery.

Can be performed with operating microscope or rod lens endoscopic technique. Under GA or LA, an incision is made approximately 8 mm anterior to and undercover of the posterior end of the middle turbinate. Once the main vessels identified it can be ligated using haemostatic clips and divided or coagulated using bipolar diathermy.

COMPLICATIONS

Rebleeding, (Anastamosed) Infections and nasal adhesions.

LIGATION OF INTERNAL MAXILLARY ARTERY

Trans – antral Route : Local or general anaesthesia is required. A Cald-well luc incision made. The maxillary antrum entered. The posterior wall of the sinus is removed. Internal Maxillary artery is identified in the pterygo palatine fossa. Hemostatic clips placed in the internal maxillary artery, sphenopalatine artery and descending palatine arteries. A naso antral window created and a light pack of medicated guaze kept for 24 hrs. Success rate is 89%.

COMPLICATIONS : Sinusitis, Damage to the infra orbital nerve, Oroantral fistula, dental damage and anaesthesia, rarely ophthalmoplegia and blindness.

TRANS ORAL APPROACH :

The plane of Buccinator is entered through Gingivo buccal incision. The buccal pad of fat is removed the attachment of temporalis muscle to coronoid process of the mandible is identified. Blunt dissection in the area reveal the internal maxillary artery. The artery isolated and clipped or ligated and divided. This approach is useful if transantral approach cannot be performed.

COMPLICATIONS :

Cheek swelling and trismus,

COMBINED ANTERIOR AND MEDIAL (ENDOSCOPIC) TECHNIQUE :

A middle meatal antrostomy is made as instrument port with a 4 mm endoscope inserted through a small canine fossa antrostomy.

LIGATION OF EXTERNAL CAROTID ARTERY

This can be performed under local anaesthesia. A horizontal incision is made about two finger breadths below the margin of the mandibular crossing the anterior border of sterno cleido mastoid muscle. Sub platysmal flaps raised. Sternomastoid muscle is retracted posteriorly and the dissection is caused down to the carotid sheath. Carotid bifurcation identified and the external carotid artery isolated and ligated below the origin of the ascending pharyngeal artery.

Complication : Wound infection, haematoma and Neurovascular damage.

LIGATION OF ETHMOIDAL ARTERIES :

The arterior ethmoidal artery is frequently encountered in a mesentry just below the skull base between the ethmoid fovea and lamina papyracea. Damage to the mesentry can lead to troublesome bleeding from the artery. Transection of the vessel during surgery can result in retraction of the bleeding end into orbit with subsequent pressure haematoma and risk of visual loss. It can be ligated via an external (medial canthaal approach or in the rare occasion where the bony anatomy permits endoscopically (transethmoidal) if bleeding stopped the posterior ethmoid is not approached.

EMBOLIZATION :

Embolization under angiographic guidance control epistaxis in 82-97% cases. Under LA, transfemoral seldinger angiography is used to identify the bleeding points. It is essential to exclude arterio venous malformations,

Aneurysms and fistulae prior to embolization. Once the bleeding vessel is identified a fine catheter is passed into the internal maxillary circulation and particles (POLY VINYL ALCOHOL, TUNGSTEN OR STEEL MICROCOILS) are used to embolize the vessels. The ipsilateral facial artery is also embolized inorder to prevent recirculation.

Complications : Skin necrosis, Paraesthesia, Cerebrovascular accidents and groin haematoma.

SUBMUCOSAL RESECTION OF NASAL SEPTUM OR SEPTOPLASTY

For prominent septal deviation or vomeropalatine spur, this can be performed for better visualization of the bleeding site and cauterization. Elevating the mucoperichondrial flap, the blood supply to the septum is interrupted and haemostasis secured.

MANAGEMENT OF SECONDARY EPISTAXIS FOLLOWING INFERIOR TURBINECTOMY

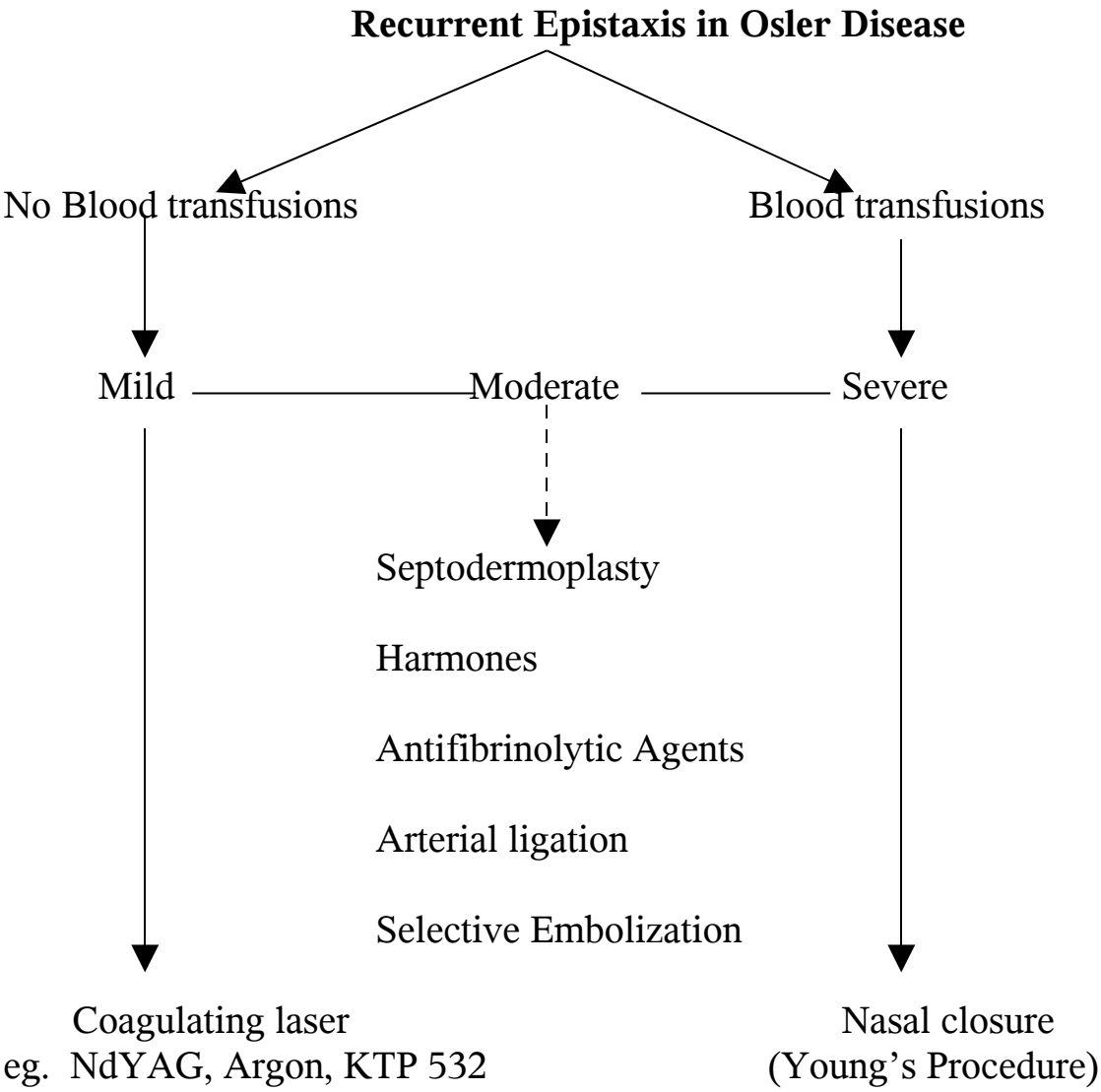
Attempts to control haemorrhage following turbinectomy should be directed towards the posterosuperior aspect of the inferior turbinate where pressure bipolar to the submucosal segment of the artery should prove effective.

Management of Epistaxis following Warfarin Therapy :

Packing may be required. Bleeding is often from multiple sites. Attempts at

instrumentation lead to further mucosal drainage and bleeding. After resuscitation anterior packs should be inserted and the haematology team consulted. With further large bleeding, fibrin glue can be used as a haemostatic dressing.

MANAGEMENT OF RENDU OSLER WEBER DISEASE



MATERIALS AND METHODS

The present work has undertaken to study the aetiological factors of epistaxis and its management at Government Rajaji Hospital, Madurai.

The total number of new cases seen in the ENT out patient department for the period of one year from 1-10-2007 to 31-09-2008 were 99,666. Out of these 3050 presented with history of epistaxis.

One hundred cases of epistaxis were selected at Random for the present study. The case history, clinical findings, relevant investigations as well as special investigations as and when required were carried out and recorded. The modality of treatment given for the control of epistaxis was also entered. A master chart was prepared and analysed.

ANALYSIS OF THE STUDY

The details of the 100 cases selected for the study are given in the master chart. The analysis and the findings of the study are given below.

Incidence of Epistaxis :

Number of outpatient cases reported over a period of one year in ENT Department	99,666
Number of Epistaxis cases reported during this period	3050
Percentage of incidence of epistaxis	3.06 %

Sex Distribution of 100 cases

Sex	No.of cases
Male	77
Female	23

The incidence appears to be 77% in males as compared to 23% in females.

The male, female ratio is 3.4 : 1

Age wise distribution of 100 cases

Age	Male	Female	Total	%
0-10	11	7	18	18 %
11-20	30	5	35	35 %
21-30	11	4	15	15%
31-40	8	3	11	11 %
41-50	10	0	10	10 %
51-60	5	2	7	7%
61-70	2	2	4	4%
Total	77	23	100	100%

Age	**Male**	**Female**
Range	3 yrs to 68 yrs	3 yrs to 65 yrs
Mean	28.4 yrs	25.8 yrs

Standard Deviation	17.21	17.28

The average age of the male cases are slightly higher than that of the female cases.

The age wise distribution shows that 68% of the epistaxis case are in the age group of below 30 years.

Distribution of cases according to the final diagnosis

Age	Trauma & 1 foreign body	URI*	Rhino sporidiosis & bleeding polyp	HT*	Miscell aneous	Idio pathic	DNS	Atrophic rhinitis
0-10	4	7	-	-	4	3	-	-
11-20	4	8	5	-	2	3	11	1
21-30	4	-	2	-	1	0	4	3
31-40	1	1	1	3	2	-	2	-
41-50	-	1	2	-	2	4	1	-
51-60	-	-	2	2	3	-	-	1
61-70	-	-	2	2	1	-	1	-
Total	13	17	14	7	15	10	19	5

- One case of foreign body nose is included
- URI – Upper respiratory infection
- HT – Hypertension
- DNS – Deviated Nasal septum

The details of cases in the miscellaneous group are Jaundice (1 case), Bleeding diathesis (3 cases), Oronasal fistula (1 case) Inverted papilloma (1 case), AC polyp

(1 case), Benign Prostate Hypertrophy (1 case), Malignancy (2 cases) Telangiectasia (1 case). Juvenile Nasopharyngeal Angiofibroma (1 case), malignant tumours (2 cases), [Malignant haemangio endothelioma (1case), squamous cell carcinoma of spheno ethmoidal region (1 case)]

Number of episodes according to the history

58 patients have had only episode and 42 patients have had more than one episode of epistaxis.

Causative factor at the onset	1st episode	Several episodes
Injury to nose	25	-
Foreign body	1	-
Nose picking	2	4
Sneezing	4	6
No cause	26	32
Total	58	42

In 58% of cases the onset was spontaneous and in 25% of cases the occurrence of bleeding was after injury to nose. In one case trauma was due to foreign body.

On clinical examination only 25 patients have had fresh bleeding. In 31 cases blood clots present in the nasal cavity and in 44 cases there was no bleeding when examined.

Localisation of bleeding in 100 cases as follows

In 35 patients the site of bleeding was the Little's area, which was on examination presented with either fresh bleeding, blood clot or congested and engorged vessels. In 10 cases the visible part of the septum was regarded as the site of bleeding and the lateral wall of the nasal cavity was the culprit in 25 cases bleeding from the mass 15 cases. In 11 cases the bleeding has originated from the invisible areas of the nasal cavity namely from the posterior part, the roof and the nasopharynx. Bleeding from woodruff's region - 4 cases.

Distribution of 100 epistaxis cases on the basis of ENT examination findings

1. Nose and para nasal sinuses external appearance	Normal 94	Swelling Present 6	Operated 0	
2. Deflected septum to right side to left side	8 11	Total 19		
3. Vestibule	Normal 86	Infected 4	Congested 10	
4. Polyp	Mucosal polyp 2	Bleeding polyp 3	Rhino sporidiosis 11	Total 16
5. Mucous membrane	Normal 68	Inflammed 15	Congested 12	Pale 5
6. Discharge	Nil 83	Muco purulent 15	Mucous 2	
7. Ulcer / growth/ Perforation	Ulcer 5	Growth 3	Perforation 1	Nil 91
8. Size of Turbinates	Normal 83	Hypertrophy 13	Atrophy 4	
9. Foreign body	Present 1			
10. Posterior Rhinoscopy	Normal 79	Bloody discharge 8	Adenoids 7	Growth(3) Blood clots(3)
11. Coagulation Abnormalities	Pancytopenia 1	Thrombo cytopenia 1	Haemophilia-A 1	

Modality of Management given

Duration of treatment for 61 cases admitted to hospital

Duration of hospitalization (in days)	Number of cases	Percentage
1 to 10 days	53	86.9 %
11 to 20 days	6	9.8 %
21 to 30 days	2	3.3 %

Modality of Management

Type of treatment given	Number of cases	Percentage
Medical	57	57%
Medical / Surgical (combined)	43	43%

61 cases out of the total number of 100 cases were hospitalized. 86.9% of the cases admitted to hospital have been treated for a period of less than 10 days.

The modality of treatment given to 57 cases was medical (non surgical) and the remaining 43 cases were managed by combined (medical and surgical) modality.

Multiple blood transfusions were given to one case.

The following non-surgical procedures were used to control the bleeding.

Medical Line	-	13 cases
Anterior nasal packing	-	17 cases
Posterior nasal packing	-	4 cases
Cauterization (Chemical & diathermic)	-	23 cases

In surgical management SMR (sub-mucous resection of the septum) was done in 7 patients for recurrent epistaxis. Other surgical procedures were used to remove the causative factor for epistaxis namely reduction of the fractured nasal bones, excision of rhinosporidiosis and excision of benign tumors etc.

Spurrectomy	3
Septoplasty	2
Rhinosporidiosis excision & cauterization	11
Arterial ligation Sphenopalatine Artery	1
External carotid Artery ligation	1
Functional endoscopic sinus surgery	3
Diathermic excision of bleeding polyp	3
Endoscopic excision of Juvenile nasopharyngeal angiofibroma	1
Endoscopic excision of inverted papilloma	1
Nasal bone reduction	3
Young's Operation	4
Modified young's Operation	1
Enucleation of tonsils and curettage of adenoids	3

DISCUSSION

Incidence :

The present study shows that the percentage of incidence of epistaxis is around 3.06%. Shaheen (1967) in his study found that the prevalence of epistaxis in random samples of the population was to be taken 10 and 12%. Petruson (1974) in his study found that in population sample 6% has atleast once epistaxis which required doctors help. The incidence in the present study is less comparable with above studies since not all the patients seek medical help in our country. The

remaining reason for this can be illiteracy and lack of health consciousness in our population. Most of the cases of epistaxis are treated by non-specialists and only complicated cases are referred to specialists.

Age distribution :

The age ranged from 3 years to 68 years with mean age 28.4 in males and 3 yeas to 65 years with mean age 25.8 in females. Out of 100 cases 77 cases were males and the remaining 23 cases were females. The average age of the males are slightly higher than that of the females. In this study the male predominance can be attributed to the aetiological factor trauma. Out of 13 cases of epistaxis due to trauma 9 cases were males. Most of these came with history of road traffic accidents or assault. As men are more involved in these events, naturally the incidence is more.

Aetiology :

68% of the cases are in the younger age group of below 30 years the upper respiratory infections are common below 30 years of age and more so below 10 years. Hara (1962) found 14% cases of epistaxis were due to acute and chronic nasal infection. The present study has showed that 17% cases of epistaxis were due to the increased susceptibility of the malnourished younger population to **Upper Respiratory Infection :** Poor living conditions nutritional factors, untreated chronic conditions of paranasal sinuses, tonsils and adenoids attribute to

this.

The other major cause of epistaxis was trauma in 13% of cases. Most of these cases were either to road traffic accidents or due to assault. In 1 of this 13 case, the trauma was caused by foreign body. The higher incidence can be explained on account of mainly higher accident rate. Rash driving and improper traffic rules contribute to this.

In 10% of the cases no reason can be attributed for the epistaxis. Nasal and nasopharyngeal rhinosporidiosis, which is prevalent in and around Rajapalayam in Madurai District, is the next important aetiological factor for epistaxis. In the present study 11% of the cases belong to this group.

7 cases of epistaxis are found to be hypertensive with high diastolic blood pressure (more than 90mm of Hg), which has come impact on the severity of epistaxis. All these are above the age of 35 years.

In the miscellaneous group which is accounted for 15 of total cases, 5 cases belong to benign neoplasms namely Juvenile nasopharyngeal angiofibroma 1 case, bleeding polypus of septum 3 and inverted papilloma 1 case. 2 cases of malignancy include hemangio endothelioma 1 case and spheno ethmoid malignancy (histopathologic examination – Squamous cell carcinoma) 1 case.

Duration of Epistaxis :

In 38 cases the duration of bleeding was less than one day and in 62 cases

the bleeding from nose was less than 5 days.

Onset of epistaxis :

The onset of epistaxis as per history in 58% of cases no specific factor could be found. In 25% of cases the epistaxis started after blow against the nose and the bleeding was for the first time. Petruson (1974) found a similar incidence of 65% in his study regarding the subjective explanation of the start of nose bleeding.

Frequency of bleeding :

The present study has also shown 42% of the epistaxis cases had a frequency of bleeding more than once, most of which occurring with no specific triggering factors. The remaining 58% of the cases had the epistaxis for the first time. This is comparable to Petruson's report of 56% of patients who had epistaxis for the first time.

Localisation of bleeding :

In regard to localization of bleeding the present study shown 35% in Keisselbach's area, 10% another visible part of septum, 25% in the lateral wall and floor of the nose and 11% it was not visible, 15% from the mass. Bleeding from posterior nares(woodruff's – 4%).

Clinical examination findings :

The anterior and posterior Rhinoscopy has revealed a few important finding which can be attributed for the cause of epistaxis. The external appearance of nose and paranasal sinuses showed abnormality in 6 cases and 19 cases the septum was deviated either to right to left. The vestibule showed congestion or infection in 14 case. The mucous membrane showed evidence of inflammation or congestion in 27 cases, pale in 5 cases and normal in 68% of cases. 14% of cases had either growth or rhinosporidial mass in the nasal cavity. 13% of cases showed hypertrophy of turbinate. 1% of cases had foreign body in the nasal cavity.

Management :

61 cases (61%) out of total number of 100 cases were hospitalized. 86.9% of cases admitted to hospital have been treated for a period of less than 10 days. 8 cases (13.1%) required treatment lasting for more than 10 days.

Medical Management :

57 cases (57%) out of total number of 100 cases were treated on medical line. Underlying medical problem if any, was identified and appropriate treatment was given in all cases.

Specific treatment for the underlying medical problem was given to the patients with hypertension, upper respiratory infection and others. One patient with haemangioendothelioma had been admitted in our ward and multiple blood transfusions were given for correction of anaemia.

Anterior nasal packing :

Out of these 43 cases, 17 cases needed anterior nasal packing under local anaesthesia to arrest the bleeding. The material used for packing was antibiotic coated ribbon gauze, which was kept for 48 to 72 hours. Broad spectrum antibiotic cover given to prevent sepsis with other supportive measures. All of these cases except one did not require re-packing after removal of the anterior nasal packing and discharged subsequently. In one case there was minimal oozing from little's area for which cauterization was done with diathermy.

Posterior nasal packing :

In 4 case the epistaxis could not be controlled with anterior nasal packing alone. So, posterior nasal packing with antibiotic coated rolled gauze was done along with anterior nasal packing under local anaesthesia. Broad spectrum antibiotic cover and intravenous fluids were given with other measures. The packing was removed after 72 hours and the bleeding did not occur.

Cautery :

Cauterization of the bleeding site with silver nitrate and diathermy cauterization done in 23 cases. Cautery was performed under local anesthesia with 4 percent lignocaine mixed with 1:100,000 adrenaline solution. All these cases

did not require second sitting of cauterization.

J.G. Toner (1990) in his study comparison of electro and chemical cautery in the treatment of anterior epistaxis had demonstrated that there is no significant difference between electro cautery and chemical cautery using silver nitrate in the control of simple epistaxis. Since chemical cautery is simple and less alarming for most patients it is concluded that it is the treatment of choice of simple anterior epistaxis.

A.Monux et al (1990) had conducted a retrospective study to assess the clinical usefulness of non surgical management of epistaxis. In his study he had used one or more of the following procedures.

1) removal of previous packing and cleaning of nasal cavities

2) anterior nasal packing with ribbon gauze and posterior nasal packing with balloon 3)cauterization using silver nitrate and 4) Surgery.

In his study, out of 340 patients 322 were treated with anterior nasal packing, 10 were cauterized using silver nitrate and with drawal of previous packing was done in 5 cases. Surgery was done in only one person (sub mucousal resection of the nasal septum).

Surgical Management :

Submucous resection :

In 7 cases sub-mucous resection of the septum was performed for recurrent

epistaxis. These patients had deviated nasal septum either to right or left with spur. They were benefited from this procedure and there was no further episode of epistaxis in all the patients.

Cauterisation of Rhinosporidal mass :

Excision of the Rhinosporidal mass from the nasal cavity and nasopharynx was done in 11 cases.

Cauterisation of Benign Lesions :

Excision of the benign lesion, bleeding polypus of the septum was performed in three patients.

Excision of the nasopharyngeal angiofibroma was carried out through Wilson's transpalatine route in 1 case.

Moure's Lateral rhinotomy was performed for recurrent inverted papilloma one case.

Biopsy for malignant tumors :

In patients with spleno ethmoidal malignancy and Haemangio endothelioma malignant tumor biopsy was taken to prove the diagnosis and radiotherapy was given.

Closed Reduction :

Reduction of the fractured nasal bones was carried out in 3 cases with fractured nasal bones due to trauma.

Spurrectomy performed in 3 cases, Septoplasty performed in 2 cases.

Arterial ligation :

Sphenopalatine Artery ligation - 1 case

External carotid Artery ligation - 1 case

Young's operation performed in - 4 cases

Modified young's operation performed in- 1 case

(Functional endoscopic sinus surgery) FESS - 3 cases

Enucleation of tonsils and curettage of adenoid - 3 cases

CONCLUSION

1. VITAL STATISTICS :

- The percentage incidence of epistaxis – 3.06%
- The incidence of epistaxis is higher in males 77% as compared to females 23%
- Younger age group (<30 years) are more prone (68%) for epistaxis
- Localisation of bleeding shows 35% in LITTLE's area. Other less common sites are lateral wall, floor of the nose, woodruff's area.

2. VARIOUS AETIOPATHOLOGY OF EPISTAXIS :

Trauma (12%) foreign body (1%) upper respiratory tract infection (17%) Deviated nasal septum (19%) Rhinosporidiosis (11%), Hypertension (17%), Idiopathic (11%), Atrophic Rhinitis (5%), Miscellaneous (15%)

3. VARIOUS MODALITIES OF MANAGEMENT OF EPISTAXIS

- (61cases) 61% of cases needed hospitalization, out of it 86.9% (53 cases) were in hospital for less than 10 days
- 57% of patients were treated by medical line of management
- 43% of patients were treated by combined medical and surgical line of management
- Among the non surgical methods 23 cases needed cauterization (chemical / diathermy) for complete cure, other modalities include anterior nasal packing, anterior and posterior nasal packing.
- 12 patients were done septal corrections for complete resolution. Apart from other definitive surgeries, for one patient with refractory bleeding, external carotid artery ligation was done for permanent cure.
- This study shows that medical line of management is the main modality of treatment in majority of the cases.

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PROFORMA FOR A CASE OF EPISTAXIS EVALUATION

Name : Age / Sex : Religion :

Address : I.P. No. D.O.E :

Occupation :

Complaints :

H/o present illness

Details of complaints :

Mode of onset

Duration

Volume

Colour

Fresh or clot

H/o Trauma / Nose picking / nose blowing

Recurrent upper respiratory tract infection / sneezing / allergy

Crusting

Lifting heavy weight / exercise

Chronic cough

Constipation

Dysuria / to rule out benign prostatic hypertrophy

Nasal obstruction

Smell disturbance

Nasal discharge /post nasal drip

Snoring

Bleeding diathesis : any spontaneous epistaxis / gum bleeding

Hemoptysis / haemetemesis / haematuria / haemarthrosis / Intracranial haemorrhage seizures

H/O Vision disturbances / abdominal pain / dragging sensation

Dyspnoea / palpitation

Chronic diarrhoea

Long standing antibiotic treatment

Icterus / generalized tiredness

Blood transfusion

Anticoagulant medication like salicylates, heparin

Chest pain, Ischemic heart disease

Earpain / fullness Hard of hearing

Change of voice

Mental disorders

Pregnancy

Oliguria / pedal or generalized edema

Vicarious menstruation

PAST HISTORY

Any h/o episode of epistaxis and other spontaneous bleeding

Any h/o previous surgery

Any h/o previous hospital admission

Any h/o blood transfusion

Any h/o exanthematous fever

PERSONAL HISTORY

Diabetes / Hypertension / Pulmonary tuberculosis / seizures

Snuff inhalation

Smoking / alcoholic

Psychiatric disturbance / self inflicted injury

FAMILY HISTORY

H/o familial bleeding disease & hereditary haemorrhagic telengiectasia

GENERAL EXAMINATION :

Patient conscious, oriented, afebrile, anaemic / not anaemic

Icterus / generalized lymphadenopathy / geneneralised edema, facial edema

Integrity of facial skeleton

RS – NVBS, added sounds (Normal vesicular breath sounds)

CVS – S1,S2 heard / no murmur / S3S4 sounds / galloping

CNS – Higher functions, cranial nerves

ABD – Organomegaly

Skin – any purpura / petechiae / exanthema

LOCAL EXAMINATION

NOSE : External contour

Shape

Scar

Ulcer

Fistula

Edema

Crepitus

Tenderness

NASAL CAVITY (Anterior Rhinoscopy)

Vestibule

Septum

Turbinates / meatus

Nasal mucosa

Posterior Rhinoscopyy

Choanae

NASOPHARYNX EXAMINATION :

DIAGNOSTIC NASAL ENDOSCOPY PROFORMA

Govt. Rajaji Hospital, Madurai

Department of ENT

Name : Age / Sex :

IP/OPNo. Date :

Indications :

Headache :

Nasal block :

Nasal discharge :

Epistaxis :

Anosmia :

Sneezing :

Scope(s) used : 0^o / 30^o / 45^o

I – Pass Nasal mucosa Inferior turbinate Inferior Meatus ET – orifice Nasopharynx Fossa of Rossenmuller		
II – Pass Nasal mucosa Superior Turbinate / Meatus Supreme Turbinate / Meatus Spheno ethmoidal Recess Sphenoid ostia		
III – Pass Nasal Mucosa Middle Turbinate Middle Meatus Uncinate Bulla Hiatus Accessory Ostia		
Nasal septum & Mucosa		

Conclusion :

Advice :

KEY TO MASTER CHART

M	MALE	HT	HYPERTENSION
Mch	MALE CHILD	DM	DIABETES MELLITUS
F	FEMALE	ECG	ELECTRO CARDIOGRAM
Fch	FEMALE CHILD	CT	COMPUTERISED TOMOGRAM
Lt	LEFT	AC	ANTRO CHOANAL
Rt	RIGHT	Hb	HAEMOGLOBIN
ITH	INFERIOR TURBINATE HYPERTROPHY	BP	BLOOD PRESSURE
PNS	PARA NASAL SINUSES	FESS	FUNCTIONAL ENDOSCOPIC SINUS SURGERY
DNS	DEVIATED NASAL SEPTUM	VIT	VITAMIN
SMR	SUBMUCOSAL RESECTION	CCF	CONGESTIVE CARDIAC FAILURE
AN	ANTERIOR NASAL	VLE	VIDEO LARYNGOSCOPIC EXAMINATION
CUSO4	COPPER SULPHATE	B/L	BILATERAL
E &C	ENUCLEATION AND CURETTAGE	USG	ULTRA SONO GRAM
SMDC	SUBMUCOSAL DIATHERMIC CAUTERIZATION	ALL	ACUTE LYMPHOID LEUKEMIA
T&A	ADENO TONSILLITIS	TURP	TRANS URETHRAL RESECTION OF PROSTATE
ASD	ATRIAL SEPTAL DEFECT	JNA	JUVENILE NASO PHARYNGEAL ANGIO FIBROMA

MASTER CHART

Name	Age/Sex	IP No.	Clinical Findings	Investigatory Abnormalities	Diagnosis	Tr
ani	20/M	10051	Lt Little area ulcerated	CT PNS : DNS Lt with spur	DNS Lt with spur	Medica
ankumar	8/Mch	11947	Lt Spur + / chronic T&A / mucopurulent discharge + vestibule	Leucocytosis / Lt spur	Chronic T&A / cold / spur Lt	Medica
	3/Mch	12009	Mucopurelent discharge + vestibule congestion of Rt little's Area	Nil	Rhinitis with trauma	Chemic cauteri
	24/F	12258	Bleeding + Lt side close to floor of nasal septum over the spur Rt ITH	CT PNS : DNS Rt with spur Lt	DNS Lt with spur Lt	SMR / AN pac
ndi	14/M	17252	Nasal mucosa congested /	Leucocytosis	Cold / chronic T	Antibio

			mucopurulent discharge + vestibule Adenoid hypertrophy		& A	medica
er Vijay	8/Mch	17412	Ulceration Lt little area	Nil	Idiopathic epistaxis	CuSO4 cauteri
akaran	22/M	17469	DNS Rt with crusts and in both nasal cavities Atrophied turbinates and mucosa	CTPNS – DNS Rt / atrophied turbinates and mucosa	DNS Rt with atrophic rhinitis	Nasal c chemic cauteri
ammal	31/F	17484	Ulceration + Lt little area / known epileptic / gum hypertrophy	Anaemia	Neuro cyticercosis with epistaxis	Chemic cauteri vit C th
nath	22/M	17930	Bleeding Rt Retro columellar vein	Nil	DNS Lt / Anterior dislocation	Anterio packing
ukumar	12/Mch	17944	DNS Rt nasal mucosa congested on both sides Rt ITH	Nil	DNS Lt	Chemic cauteri
esh n	7/Fch	17954	Both tonsils enlarged muco purulent discharge in vestibule	Leucocytosis	Chronic T & A	Medica
	27/M	18026	Rt middle turbinate, enlarged DNS Lt with Rt ITH	-	DNS Lt / Rt ITH / Rt concha bullosa	SMR /
mani	42/M	18410	Old clots from Rt littles area Lt ITH	Nil	DNS Rt	Medica
nra	17/F	20354	DNS Rt / discharge + Lt ITH	Nil	DNS Rt	Medica
nth	12/Mch	23412	Abrasion Lt Little area / mucopurulent discharge + vestibule	Leucocytosis	Cold / Epistaxis	Chemic cauteri
sh	18/M	24980	Thick mucopurulent discharge +	Leucocytosis	Acute Bacterial Rhinosinusitis	Antibio
re	12/Mch	25703	Chronic T &A	Nil	Chronic T&A / epistaxis	Medica
kumar	40/M	28194	DNS Rt / Thick mucopurulent discharge / bleeding from Rt middle meatus Lt ITH	Elevated blood sugar	DNS Rt / chronic sinusitis	SMR nasal p
raj	16/M	34536	DNS Lt / congested nasal mucosa Lt ITH	Large ASD + Os type Lt → Rt shunt +	DNS Rt / septal spur	Chemic cauteri
ah	42/M	35150	Bleeding Lt Nasal cavity	Anaemia + Hb 8.6gm%	Idiopathic epistaxis	Chemic packing cauteri
ikeyan	14/M	35485	Reddish vascular mass Rt Nasopharynx	Hb- 7 mgs% CT PNS Nasopharynx filled with globular mass	Recurrent JNA	Endosc excisio
yan	12/Mch	37292	DNS Rt / Thick mucopurulent discharge + vestibule Lt ITH +	Nil	DNS Rt / Rhinitis	Medica
urathnam	65/M	37401	Reddish fleshy mass + in both nasal cavities / subglottis	Hb-8.1 gms%, Blood sugar 280 mg% BP 160/100 ECG First degree heart block	Rhinosporidiosis / HT / DM 1degree heart block	Diather excisio
	15/F	38189	DNS Rt / Littles area congested Lt ITH	Nil	DNS Rt	Chemic cauteri
manian	65/M	38211	DNS Rt with spur with HT bloody discharge	BP – 170/100 mmHg	HT epistaxis & DNS / spur	Anterio antihyp treatme

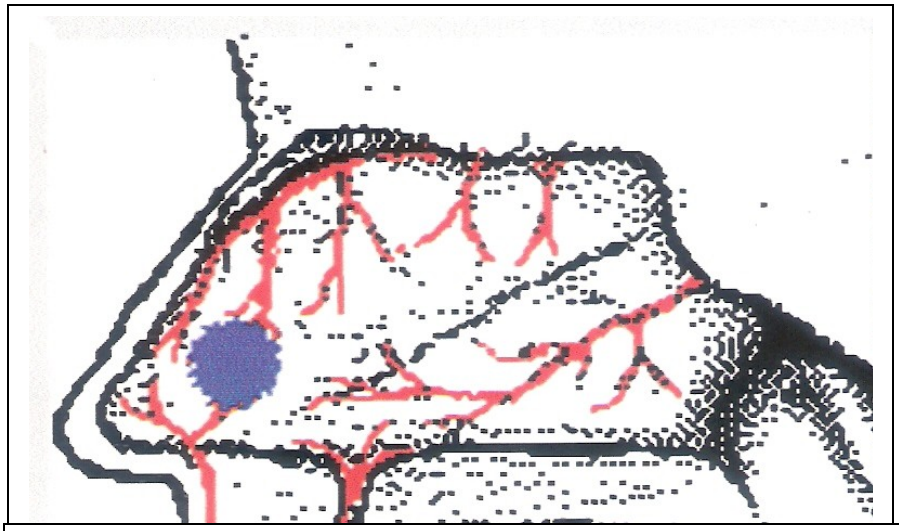
an	12/M	39052	Chronic T&A / mucopurulent discharge vestibule	Leucocytosis	Chronic T&A / epistaxis	Medica
gesan	10 / Fch	40815	Chronic T&A/ mucopurulent discharge vestibule	Nil	Chronic T&A / epistaxis	Chemic cauteri
navarnam	20/F	40899	Atrophied turbinates both sides Oozing + Rt vestibular area	CT PNS – both sides turbinates atrophied	Atrophic Rhinitis / vestibulitis	Chemic cauteri packing
uraman	15 / M	40982	DNS Lt with Rhinitis Rt ITH	Nil	DNS Lt with Rhinitis	Septop
ppiah	36 / M	41646	Polypoidal mass Lt nasal cavity	CT PNS – Lt Nasal cavity filled with mass and erosion of nose antral wall Bx inverted papilloma	Inverted Papilloma	Endosc excisio
nthprabu	10/ Mch	41890	Chronic T &A / Lt little area bleedings	Nil	Chronic T&A / epistaxis	Medica
hankar	13/ Mch	43204	Ulcer + Rt vestibule	Nil	Rt Vestibulitis	Antibio
ukumar	23/M	43207	Edema, tenderness over the root of nose + / B/L echymosis, bleeding +	X ray PNS Normal	Nasal trauma	Anterio packing
garaj	8 / M ch	44634	Blood clots + in Rt nasal cavity	Nil	Nose pricking	Chemic cauteri
krishnan	9 / Mch	43739	Blood clots + in Rt nasal cavity	Nil	Nasal trauma	Chemic cauteri
sh	22/M	45501	Edema / tenderness + over the dorsum bleeding +	Nil	Trauma	Anterio diather cauteri
la	11/Fch	45906	Creptitus and tenderness over the nasal root DNS Lt with blood clots Rt	X ray PNS # nasal bones	RTA	# Chemic cauteri
nya	8 /Fch	46033	Adenoid enlarged / muco purulent discharge	Nil	Chronic T&A	Medica
asamy	14/M	46266	Mucopurulent discharge	Leucocytosis	Cold / URTI	Medica
	13/Mch	46364	Vascular mass attached to septum Lt	Anaemia +	Bleeding polyp Lt	Diather excisio
aran	26/M	46482	Reddish fleshy mass both nasal cavity bleeding	Anaemia	Recurrent Rhinosporidiosis	Diather excisio nasal p
	28/F	46840	DNS Rt / Lt turbinates atrophy	CT PNS – DNS Rt / Lt turbinates atrophied	DNS Rt / Lt atropic Rhinitis	Young
enga	29/M	46913	Bleeding from Rt nasal cavity	Nil	Nose pricking	Anterio
garsamy	45/M	48463	Lt nasal reddish leafy mass bleeding	CT PNS – Lt Nasal cavity filled with mass	Lt Nasal rhinosporidiosis	Diather excisio
vasamy	56/M	48544	Telangiectasia and septal perforation bleeding	CT PNS Septal perforation and telangicatesia	Telangiectasia and septal perforation	Anterio packing carotid ligation septode
aman	68/M	48643	DNS Lt / spur Rt Rt ITH bleeding +	Nil	DNS Lt / Spur Rt	Anterio

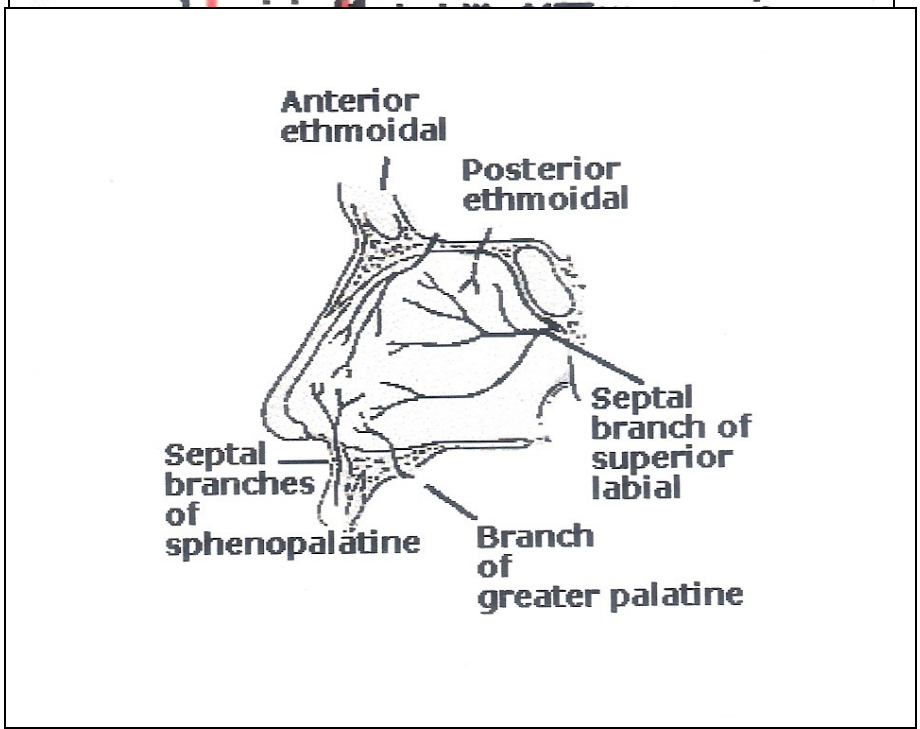
						diather cauteri spurre
sh	15/m	49568	Rt Reddish mass + bleeding +	Anaemia	Lt Rhinosporidiosis	Diathe excisio
	40/M	49618	Bleeding Rt woodruffs region, bleeding	BP – 160 / 110mmHg	HT epistaxis	Post n anterio packing
darshini	7/Fch	50240	Furuncle Lt Nasal cavity	Nil	Rt Vestibulitis	I & D nasal p
ik	23/M	50274	DNS Rt / Anterior dislocation Rt bleeding and from Rt Retrocolumellar region	Nil	DNS Rt / Anterior dislocation Rt	Diathre cauteri
sh	40/M	50374	Reddish leafy mass Rt nasal cavity	Anaemia	Rt Rhinosporidiosis	Diathe excisio
	11/Mch	50396	Blood clots and in Rt middle meatus	X ray PNS normal	Trauma Nose	Chemi cauteri
	45/M	50459	Blood clots from Rt sphenopalatine region	USG abdomen BPH +	BPH / Epistaxis	Chemi cauteri TURP
swari	21/F	50756	Blood clots in the Lt nasal cavity	Nil	Idiopathic epistaxis	Chemi cauteri
guraja	15/M	50954	Bleeding from Lt little's area	Nil	Idiopathic epistaxis	Diathe cauteri anterio packing
dran	8/Mch	50974	Congested Lt little area and floor of nose	Nil	Nose pricking	Chemi cauteri
sh	15/Mch	51176	Reddish leafy mass Rt nasal cavity	CT PNS mass in Lt nasal cavity	Left Rhino sporidiosis	Diathe excisio
nth	12/M	51343	Diffuse bleeding from both nasal cavity	Decreased factor 8	Haemophilia A	AN pa cauteri
kar	20/M	51380	Blood clots in Rt little's area	Nil	Idiopathic epistaxis	Chemi cauteri
	38/M	51412	DNS Lt / blood clots Lt spur region	Nil	DNS Lt / spur +	SMR /
akshmi	35/F	51496	Posterior bleeding from Rt nasal cavity	BP 160/110 mmHg	HT epistaxis	ANpac nasal hyperte therapy
pathi	9/Mch	51868	Congested Lt Vestibule	Nil	Idiopathic epistaxis	Chemi cauteri
nayan	18/M	51977	DNS Rt / old clots + Rt Little area	Nil	DNS Rt / epistxis	Septop
gasamy	13/Mch	52176	Mucopurulent discharge in vestibule congested nasal mucosa both sides, Mild ooze Lt +	Leucocytosis	Cold / URTI	Antibio Anterio packing
ammal	55 / F	54278	Posterior bleeding from Rt nasal cavity (woodruff plexus)	BP 170/100 mmHg	HT epistaxis	AN pa Anti therapy

mar	16/M	55760	Hypertrophic thickened mucosa Lt side / oozing and Lt Little's area	CTPNS Lt Ethmoid and maxillary sinustitis	Chronic hyper trophic Rhinitis	AN diather cauteri
ppasamy	42/M	55925	Polyp + Rt middle meatus	DNE – polyp + Rt middle meatus	Rt AC polyp	FESS /
rar	13/ Mch	57750	Edema + over the root of nose and dorsum nasal mucosa congested blood clots +	Fracture Nasal bones	Trauma Nose	Chemi cauteri bone re
yandi	25/M	59757	Reddish leafy mass Lt nasal cavity blood clots +	Anaemia	Lt Rhino sporidiosis	Diather excisio
avanan	15/M	62192	Reddish polyp Lt nasal cavity attached to anterior septum bleeding	Hb 7.8 gms%	Lt bleeding polyp	Diather excisio nasal p
sh	18/M	62795	Reddish mass + Lt nasal cavity blood clots +	Hb – 9.0 gm%	Lt Rhinosporidiosis	Diather Excisio
krishnan	27/M	64845	Oronasal fistula + Lt floor of nose blood clots crusts + mild oozing +	Leucocytosis CT PNS oronasal fistula	Oronasal fistula / epistaxis	Anteri / fist with fl
dhini	4 / Fch	64936	Foreign body (cloth piece) Lt nasal cavity	DNE foreign body seen	Foreign body / epistaxis	Foreig remova
navarnam	35/M	66933	DNS Rt / spur Lt / congestion Rt spur region blood clots in choanae +	BP 150 / 100 mm Hg	DNS Rt / Lt spur with HT epistaxis	SMR medica
samy	41/M	67853	Ulceroproliferative mass + Rt spheno ethmoidal region	CT PNS Haziness erosion + in spheno ethmoidal region and cribriform plate	Rt spheno ethmoidal malignancy	Radiotl
bathran	32/M	68267	Reddish leafy mass + in both nasal cavities	VLE Reddish mass in subglottis	Nasal and subglottic Rhino sporidiosis	Endosc excisio cauteri
an	50/M	69655	Vestibular inflammations	Echo : CCF and cardiomegaly	Vestibulitis / DCM / CCF	Chemi cauteri
murugan	12/Mch	71451	Abrasion over Lt little area / DNS Lt	Nil	DNS + epistaxis	Medica
gan	30/M	71492	Atrophied turbinates / mucosa Lt nasal cavity	CT PNS same	Atrophic Rhinitis	Young
ex	10/Fch	72897	Diffuse bleeding + both nasal cavities	Hb 6.2 gms%	Jaundice, Trauma	Anteio
n	6/Mch	73284	Mucopurulent discharge vestibule and both nasal cavities, Nasal mucosa congested, bleeding + Lt retrocolumellar vein	Eosinophilia	Cold / URTI	Antibi Anteri packin
kar	36/M	75048	Congestion Lt Little's Area	Nil	Harsh Nose blowing	Medica
ah	5/Mch	77984	Diffuse bleeding both nasal cavities	Anaemia decreased platelet count	Bleeding diathesis	Anteri packin transfu
anakumar	6/Mch	78066	Blood clots and both nasal cavities, ulceration and both littles area	Epileptic on anti epileptics	Cold / URTI Vit C deficiency	Chemi cauteri therapy
ram	58/M	78437	Posterior bleeding Lt nasal cavity	BP 180/120 mmHg	HT epistaxis	Anteri posteri packin therapy

garsamy	41/M	78879	Reddish leafy mass + both nasal cavities blood clots +	Anaemic	B/L Rhinosporidiosis	Diather excisio
a devi	18/Fch	79212	DNS Rt / Rt ITH / old clots Rt nasal cavity	Nil	DNS Rt / Rt ITH	SMR /
	23/F	79416	Edema / tenderness + over the root of nose No creptius Blood clots +	X ray : Linear # nasal bones without displacement	Nasal trauma	Chemic cauteri
ammal	65/F	80714	Bleeding Rt Nasal cavity blood clots Rt choana +	BP 150/100 mmHg	HT epistaxis	Anterio packing therapy
sh	15/M	83181	Reddish mass + Lt nasal cavity, blood clots +	Hb 9 gms%	Lt Rhinosporidiosis	Diather excisio
yammal	61/F	84043	Reddish proliferative mass Lt nasal cavity with bleeding	Bx proved CT PNS homogenous mass Lt nasal cavity with erosion of medial orbital wall	Malignant haemangio endothelioma	Radiotl
ugam	51/F	84426	Bleeding Rt Nasal cavity / DNS Rt	Nil	Idiopathic epistaxis	Sphenc artery AN pac
n	45/M	65704	Diffuse oozing + both nasal cavities Drying of nose + Pedal edema +	USG Abd. Mild pleural effusion Hb 3.6gm% Urea 12.4gm% Creatinine 3.3mg%	CRF with severe anaemia with epistaxis	Conser treatme
am	56/M	43806	Polypoid mucosa + both middle meatus, blood clots Rt middle meatus after probing	CT PNS : B/L sinonasal polyposis with erosion of cribriform plate and medial wall of orbit	B/L sinonasal polyposis	FESS
atesh	19/M	44534	Rt lateral deviation of nasal pyramid, bleeding from both nasal cavities	X ray – fracture nasal bones	Nasal trauma	Anterio packing reducti
n kumar	17/M	35067	Mucopurulent discharge + DNS Lt with spur congested nasal mucosa	Nil	DNS Lt / spur with sinusitis	SMR /
matchi	31/F	65505	DNS Lt blood clots + Lt nasal cavity	Blood sugar F – 180 mg% PP – 315 mg%	B/l Fungal sinusitis	FESS
nan	45/M	66754	DNS with spur Lt / small sessile polypoidal mass attached to Lt septum	CT PNS, DNS Lt concha Bullosa	Bleeding polyposis Lt	Endosc diather
al	57/M	21092	Atrophied turbinates both nasal cavities	CT PNS : Roomy nasal cavity and hypoplastic maxillary sinus both sides	Atrophic Rhinitis	Rt moc proced
osh	5/Mch	67099	Blood clots both nasal cavities	Bonemarrow study suggestive of ALL pancytopenia CT chest, thymus enlarged, in anterior mediastinum and pericardial effusion	ALL	Chemic cauteri

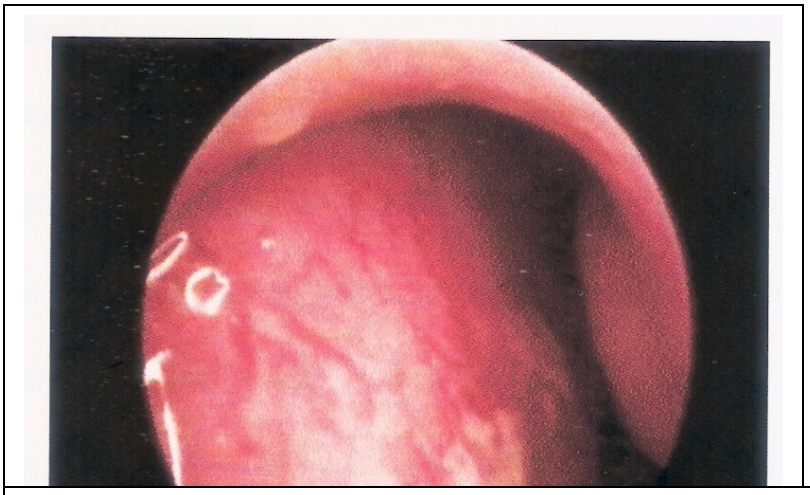
VASCULAR ANATOMY OF NOSE

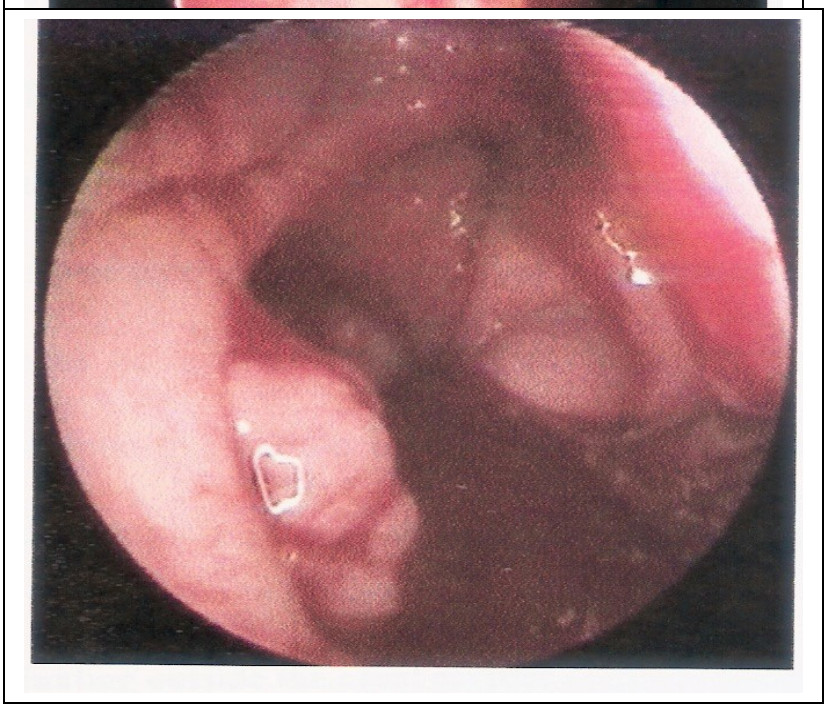




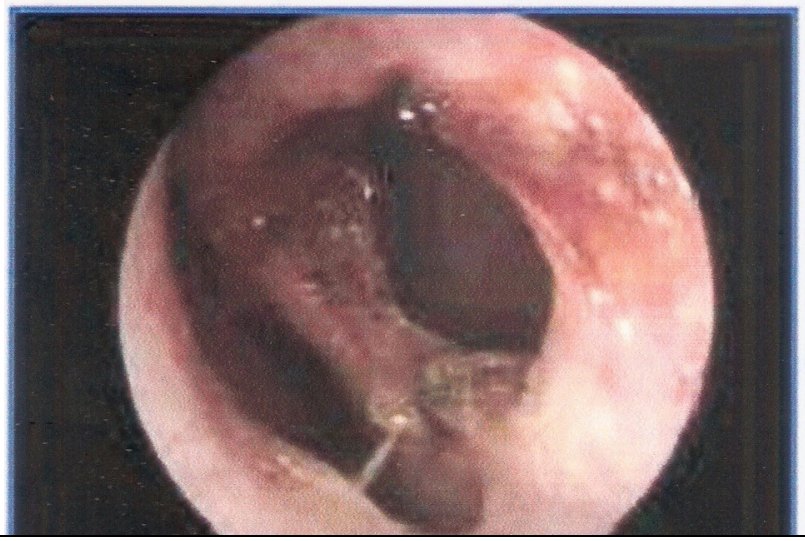
ANTERIOR EPISTAXIS

LITTLE'S AREA BLEEDING





SEPTAL PERFORATION



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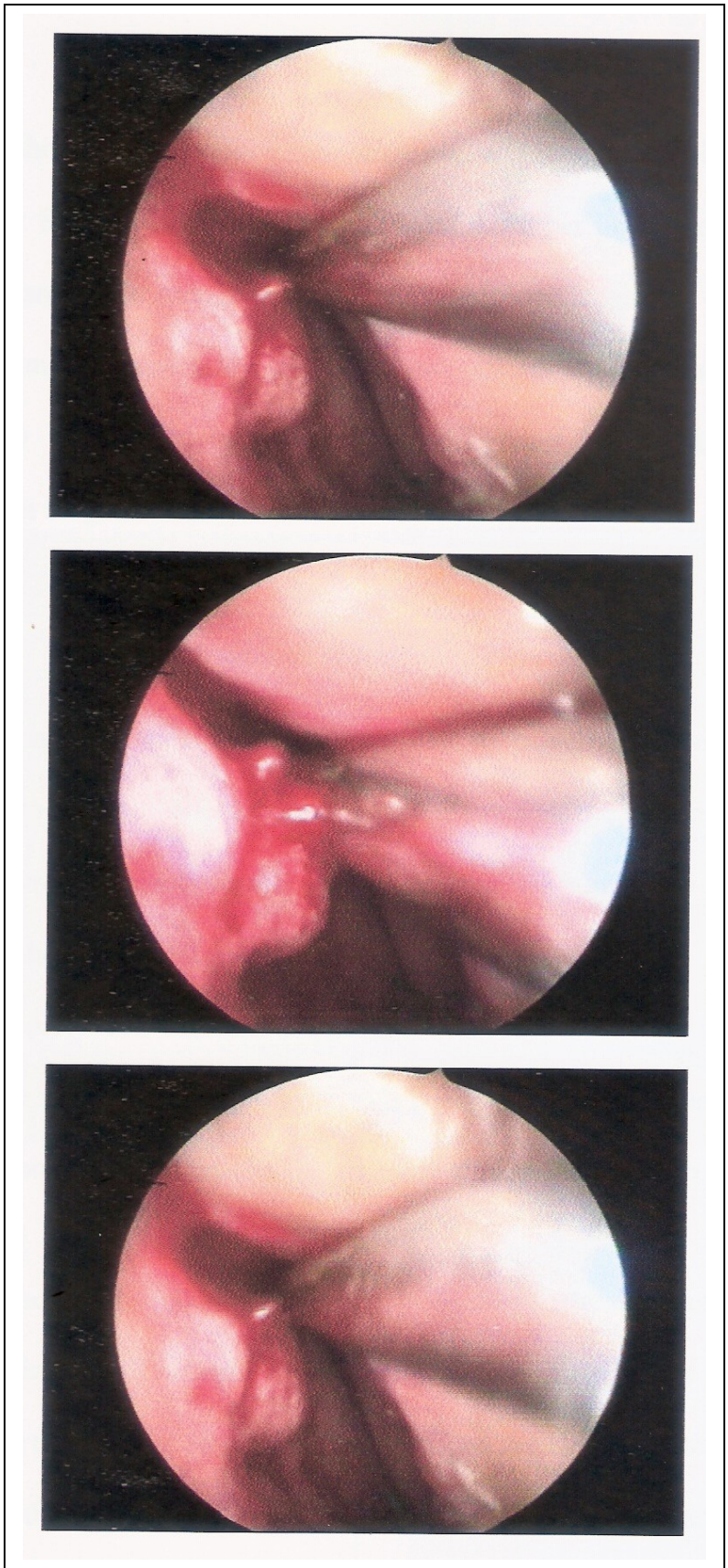
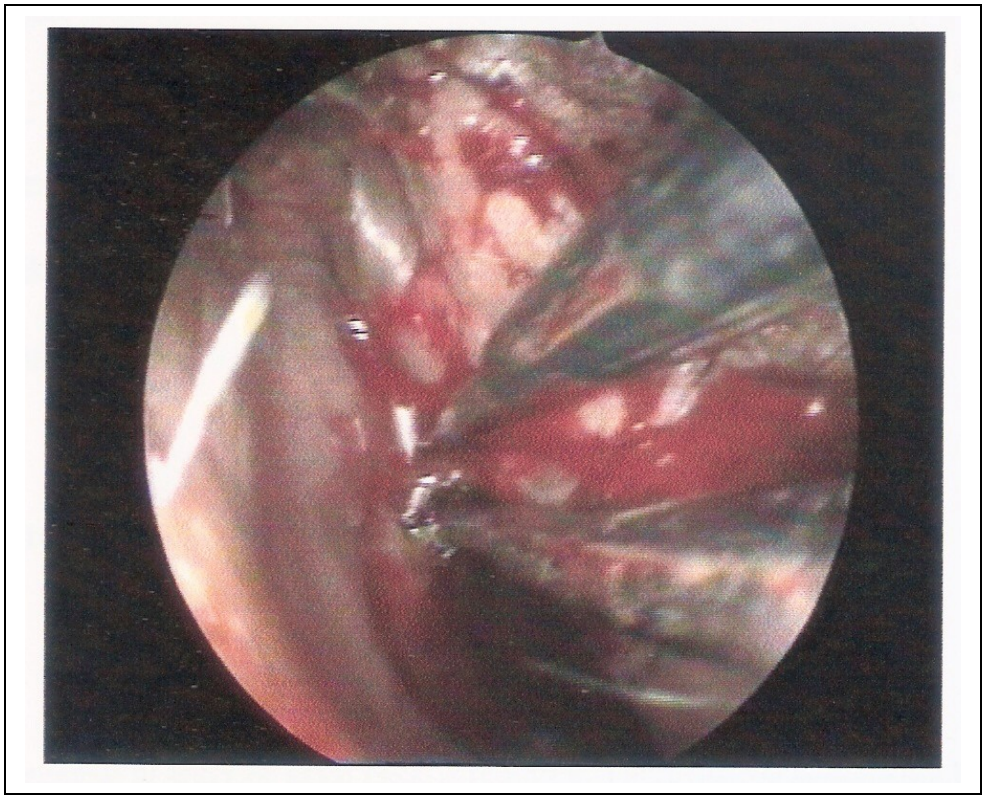
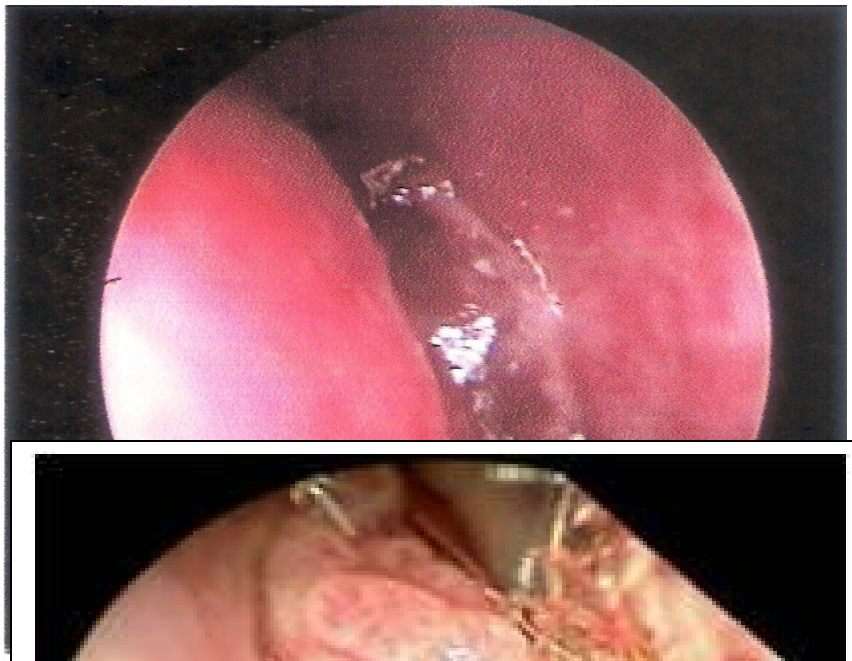


BIPOLAR DIATHERMIC CAUTERIZATION



HAEMANGIO ENDOTHELIOMA



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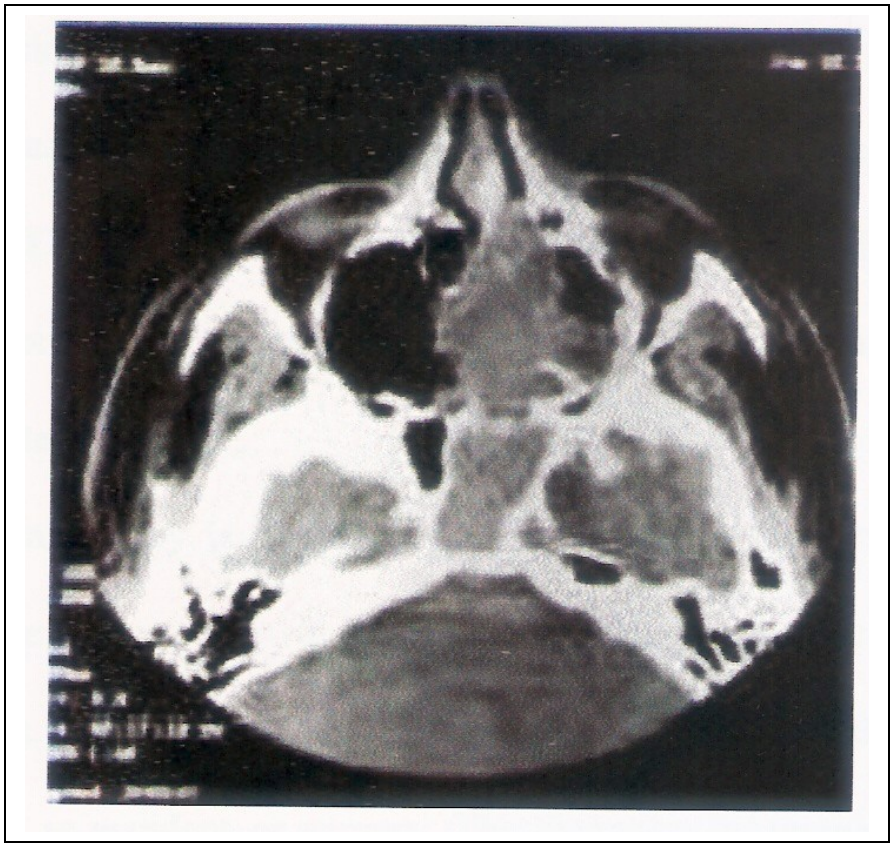
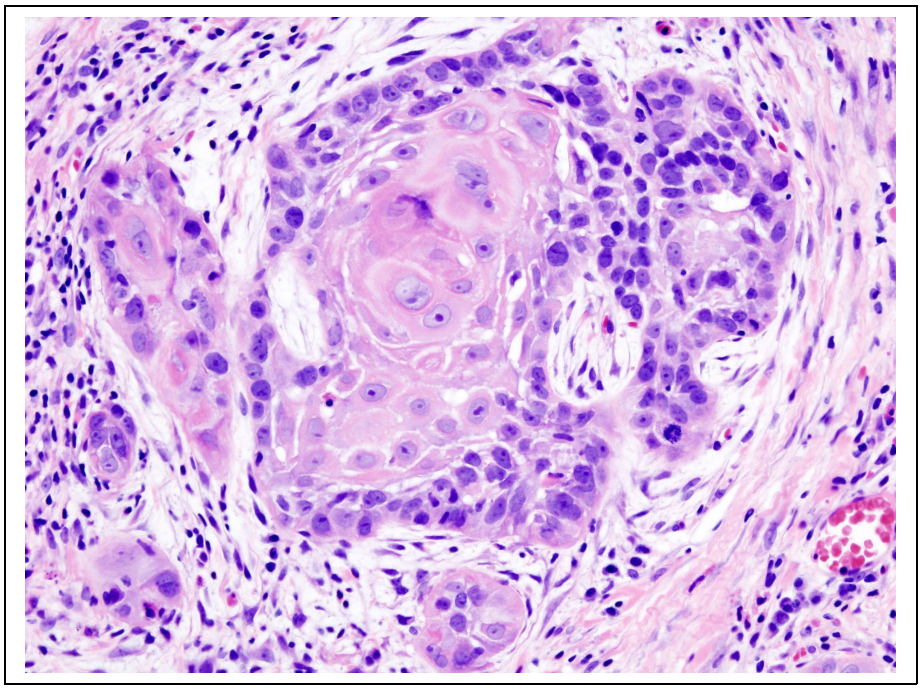
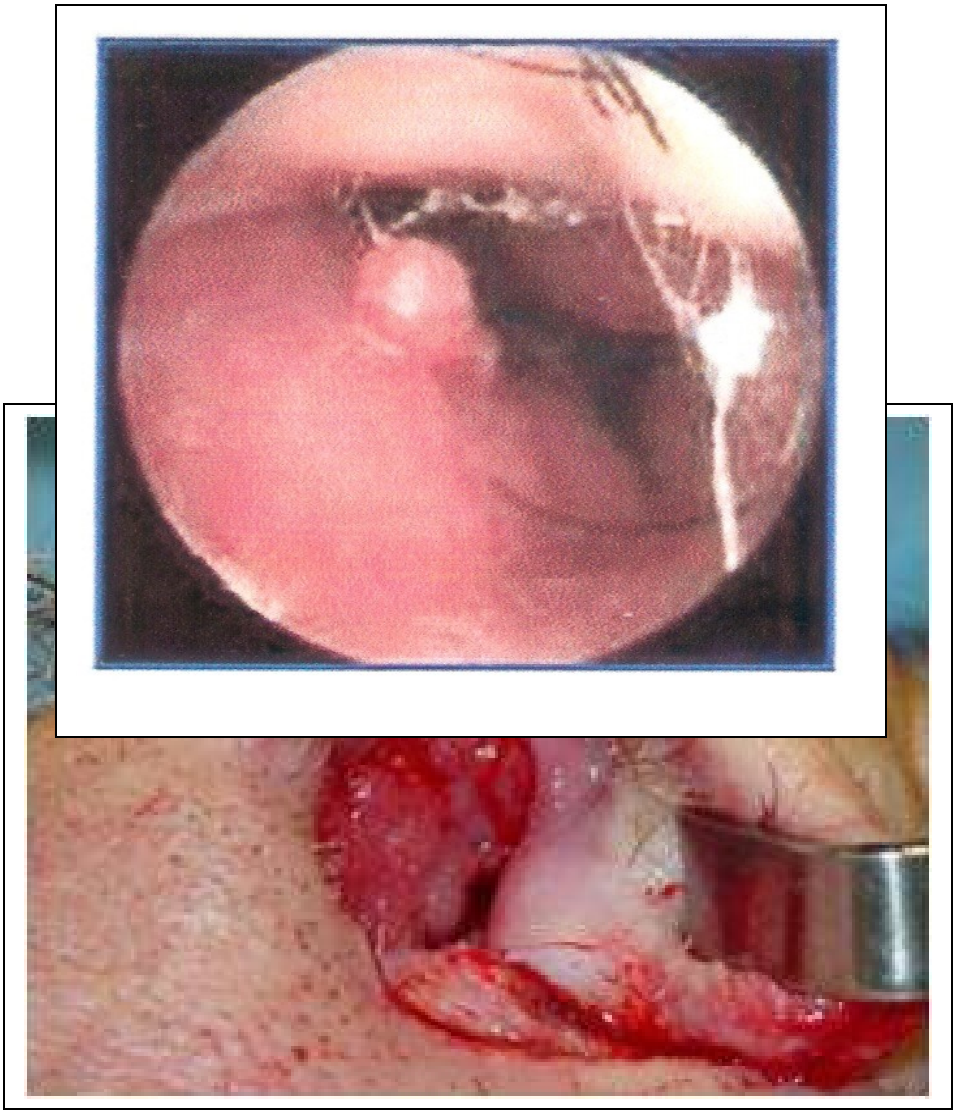
SQUAMOUS CELL CARCINOMA - NASAL CAVITY



HISTOPATHOLOGY OF SQUAMOUS CELL CARCINOMA

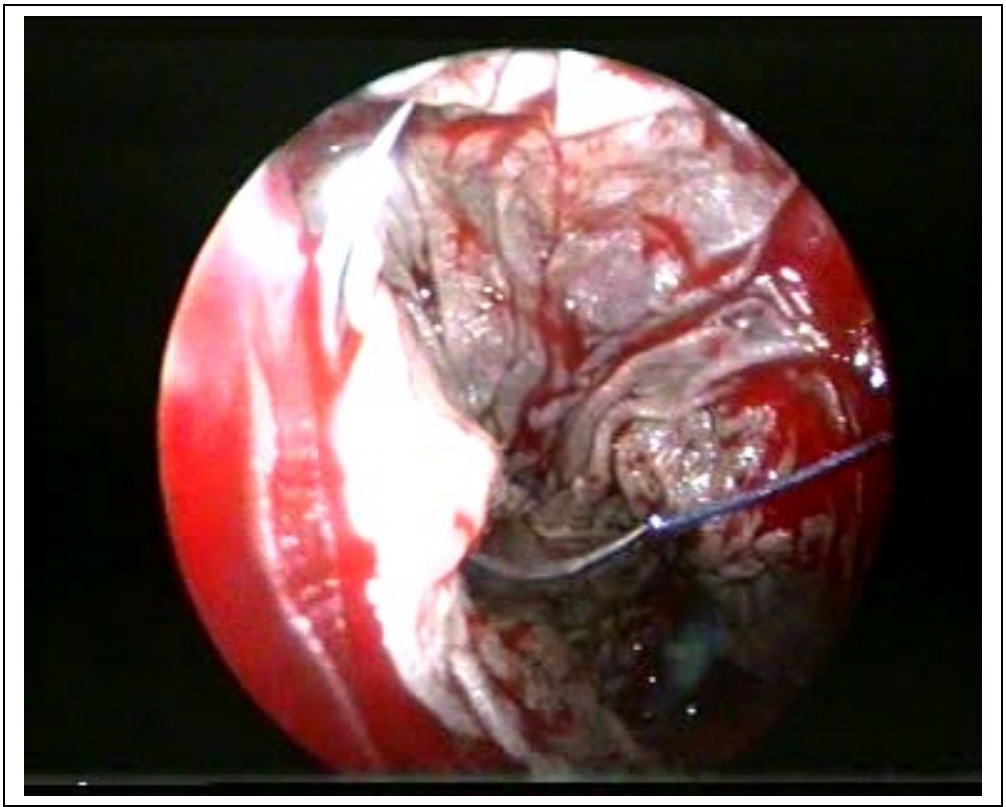


BLEEDING POLYP NASAL SEPTUM

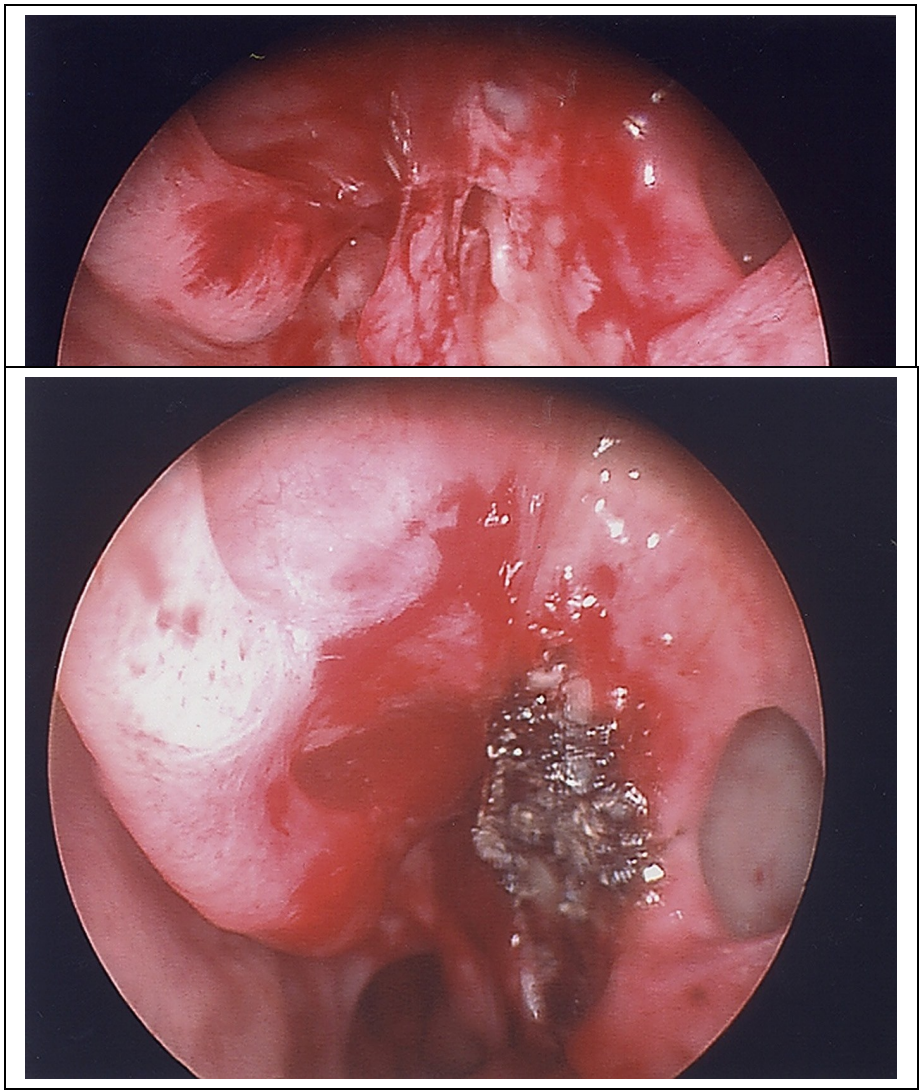


RHINOSPORIDIOSIS

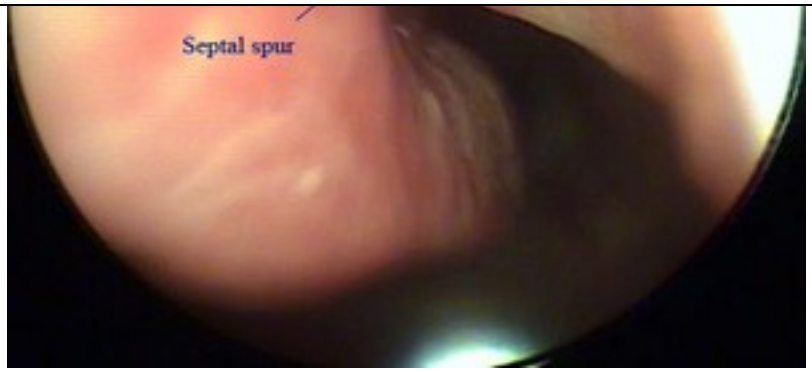
SEPTODERMOPLASTY



SPHENO PALATINE ARTERY LIGATION (ESPAL)



DEVIATED NASAL SEPTUM



NASAL BONE FRACTURE REDUCTION

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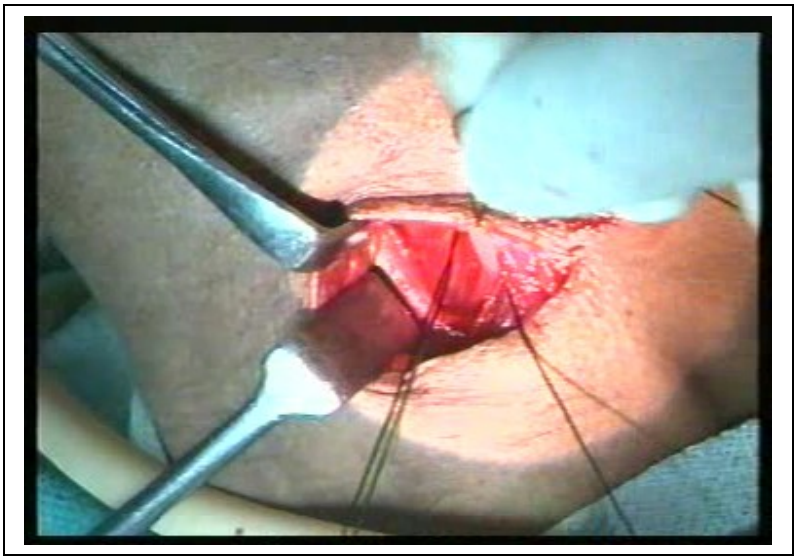
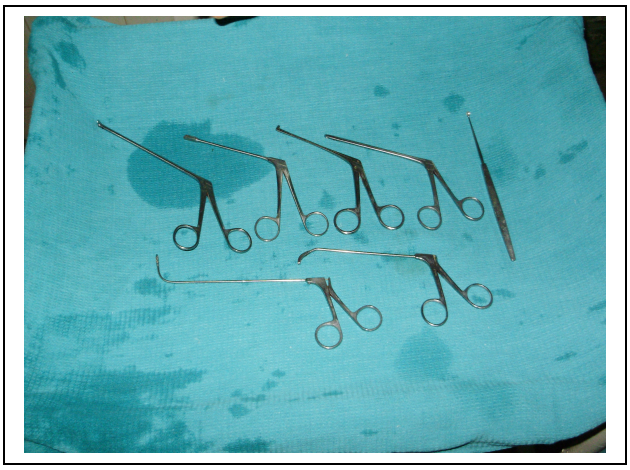
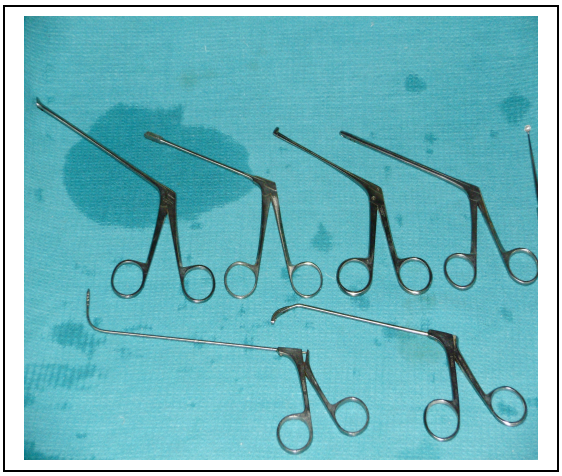
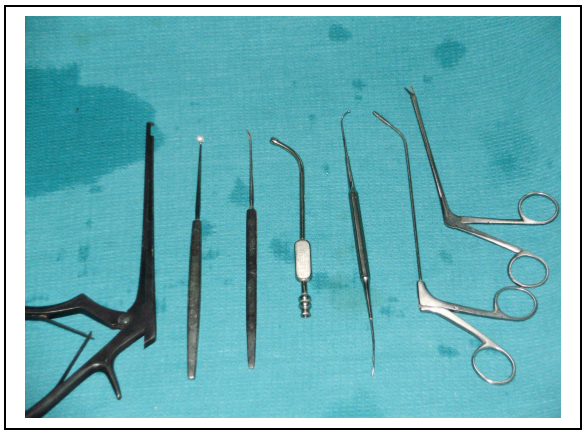
EXTERNAL CAROTID ARTERY LIGATION

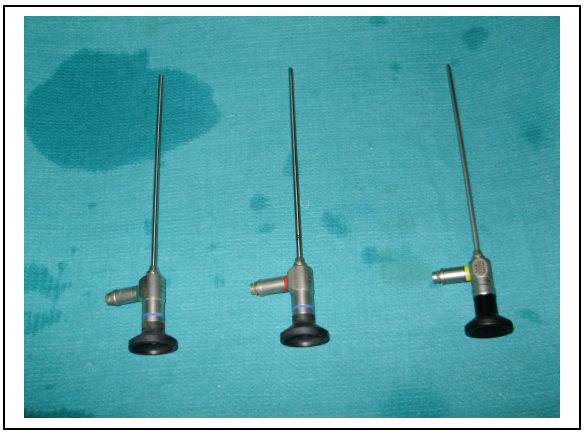


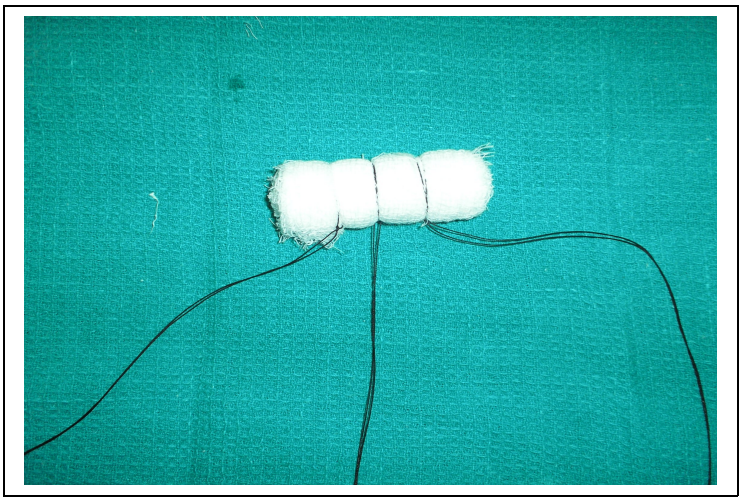
ENDOSCOPES WITH INSTRUMENTS



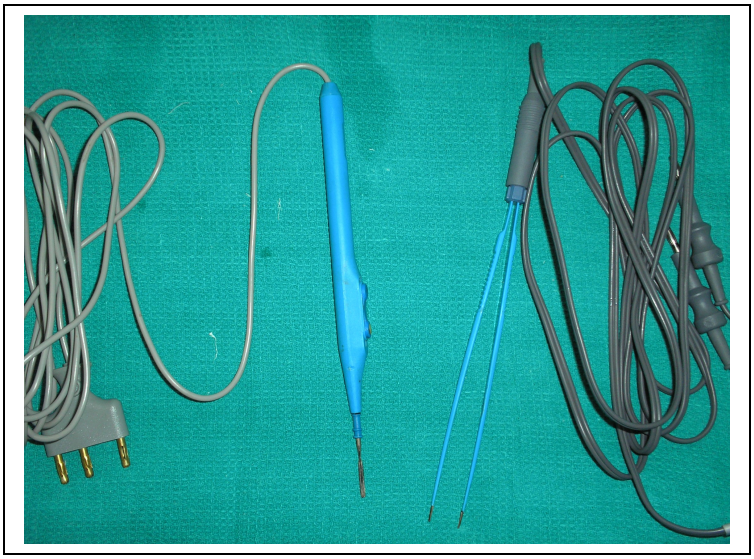








UNIPOLAR AND BIPOLAR DIATHERMY



FOLEY'S CATHETER BALLOON TAMPON